

**PT7 cuts costs**

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# Computer Weekly

Thursday, February 9, 1984 Number 897 35p

## UK set for world lead in schools software

by John Kavanagh  
THE government is to launch a multi-million-pound push to develop software for secondary schools, which could establish the UK as a world leader in educational software.

The scheme, to be announced by the Department of Trade and Industry in March, will run for two years. It will cover secondary schools only. The budget has yet to be set, but it will be less than the £20 million the Department spent on putting microcomputers in all the UK's 5,500 secondary schools and most primary schools.

This should give the UK the world lead in educational software that it already has in educational publishing, says Douglas Eycum, director-general of the Computing Services Association. Microcomputer firm Sinclair Research agrees. "There's enormous potential," says a company spokesman. "The problem is that no other country, certainly in Europe, has anything like the government support for micros in schools that we have here."

The government money will go

not to software firms but to schools. "The schools know what they need, so this is the best way," says Eycum.

"Schools are notorious for copying books and music and so on, so there must be a way of solving the software piracy problem."

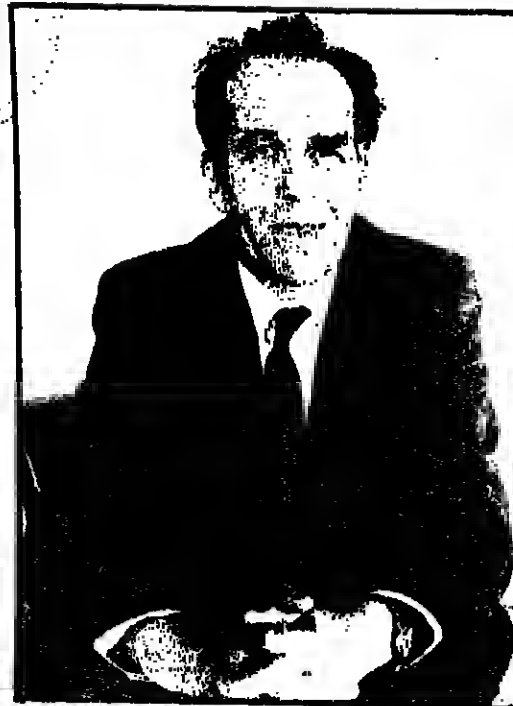
The Department recognises this problem in its proposals. One solution is for a software firm to sell a master copy of a product to a local authority, plus the right to make a specific number of copies.

The government plan is a response to widespread criticism of its original scheme of putting computers in schools. Last month the national ITMA project - investigations on teaching with microcomputers as an Aid - questioned the teaching value of many programs, saying they were little more than games.

ITMA director Dr John Campbell says: "We've all had the naive idea - typified by the government's attitude - that all the schools needed was equipment."



NEWELL... "Collaboration is now happening."



OAKLEY... Laid down ground rules.

## Alvey offers fair shares

by George Black  
ALVEY Programme directors last week met the heads of over 100 UK firms in London to explain their plans for involving participants from all sectors of industry.

The meeting followed representations by the Computing Services Association, which was worried that small companies might not get a fair share of the work in the five-year national plan for developing the next generation of computers. Delegates from CSA and non-CSA firms at the Strand Palace Hotel seminar heard Alvey directors present the case for their strategy.

VLSI director Bill Fawcett said it had been necessary to concentrate in certain areas, so they had

restricted themselves to research in silicon techniques.

Software engineer David Talbot similarly stressed that specialisation was essential, and defended the choice of Unix as the main focus (see *Software File*, page 10).

Programme director Brian Oakley outlined his intentions on the framework for collaboration. He said he wanted formal consortia to be set up involving private companies, government bodies and academic institutions. There would also be "category clubs" made up of contributors to any of the enabling technologies or a subset of one of them.

This would help to draw in smaller firms with a high level of expertise to offer but without

financial strength to take part in consortia and put up half the cost.

Oakley gave guidance notes for applicants, and laid down ground rules for the handling of intellectual property rights to products of the scheme. Industrial contributors would be entitled to a licence to use the work of other members of a consortium or club to exploit the results of research, he said.

After the event, which was closed to the Press, the CSA president, Alison Newell, who chaired the meeting, commented: "I think smaller specialised firms now realise that they can play a part by getting together with bigger ones. Collaboration was quite hard for competitive companies to come to grips with."

Immos is understood to be looking to raise about £15 million.

## City ready to put cash into Immos

by Dave Madden

IMMOS, the government-backed semiconductor manufacturer, is close to securing investment from City institutions.

Immos was "at home" last week to several investment companies which are interested in buying shares.

A spokesman for Scottish investment trust group Ivory & Sime confirms that his company has taken part in an "exploratory trip" - with no hard commitment to Immos.

The prospect of a private placing this spring, and a more sanguine response from potential investors, has allowed Immos to reject the recent overtures from GEC. "The electronics giant had sought to take a majority stake in Immos, if not to buy it outright."

But Immos may still entertain the idea of an individual partnership with GEC, or another corporation, similar to the link between GEC and the likes of Sperry, DEC, Bull, Immos would be in a stronger position to negotiate after a successful round of private financing.

Immos' chances of raising private capital have improved markedly in recent months. The company has received some £100 million of public money in direct funding and grants, but the government has refused to put up more cash. It posted a loss of £20.4 million on turnover of £13.7 million in 1982, but expects to break even in its current financial year.

Also Immos has benefited from the improving prospects for the whole semiconductor industry.

Immos is understood to be looking to raise about £15 million.

## MSC plans more technical training

by John Riley

THE Manpower Services Commission (MSC) is to move away from providing basic skills training, and more towards giving craft and technical training, with an emphasis on new technology related areas.

That is the substance of a White Paper published last week by the government, which has raised a storm of protest by local education authorities.

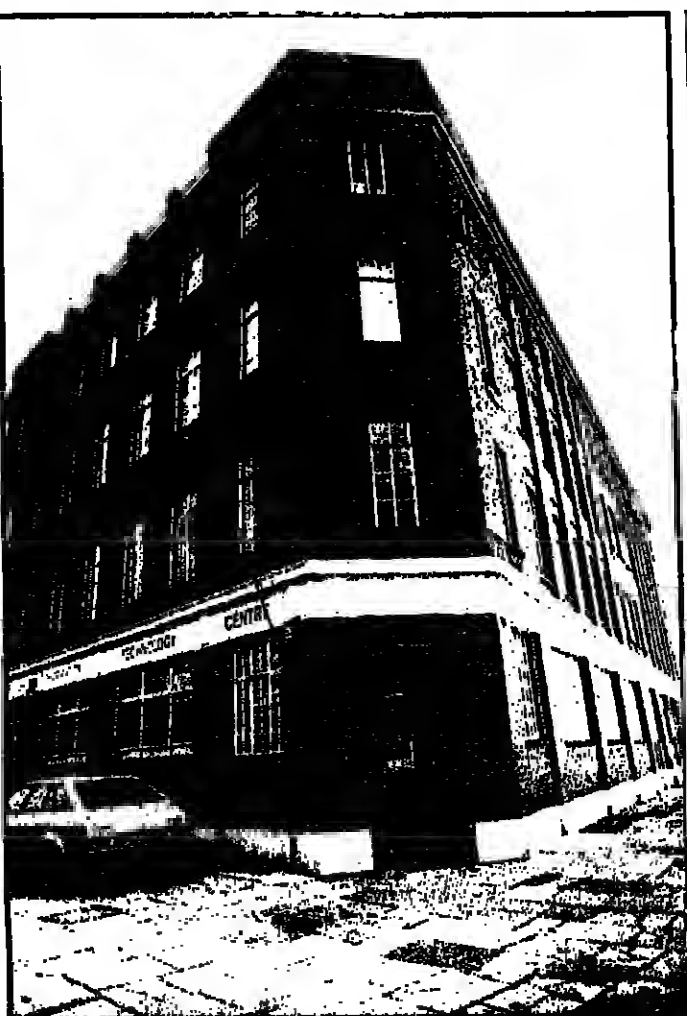
The protests relate mainly to a massive switch of cash to the MSC for job training previously carried out by the local authorities, and is viewed as part of the battle between central government and the local authorities.

The White Paper is not specific on how much will be spent on new technology training, but the MSC will give "priority to newly emerging skills, such as electronics and robotics".

The number of Information Technology Centres (ITTCs), funded partly by the MSC and the Department of Trade and Industry (DoTI) to introduce young people, to ITTCs has been raised from 150 to 175, although only about 100 have opened so far.

Skill centres are to concentrate on meeting local needs, and IT training for adults is to be introduced into nine regional centres, starting next month in Plymouth.

The White Paper marks a shift for the MSC, says Gordon Ewan,



More ITTCs, like this one in Bristol, are planned.

only one year in office, and there was a delay in appointing his successor, John Collins.

The Open Tech, a kind of Open University for technical skills using distance learning techniques and which involves IT companies, will be developed further, although George Tolley, who set up the scheme was also replaced before he had been in the job for one year.

"The White Paper marks a shift for the MSC," says Gordon Ewan,

## Skill sacrifice was used in dole scandal

by George Black

A PLAN to train thousands of young people in computer skills was dropped in a cosmetic effort to reduce the number on the dole.

The idea was for 350,000 unemployed youngsters to be trained for jobs in information technology. But the government discovered it could train more jobless in lower-level skills by spending the same amount - and therefore get more propaganda value for its money by reducing the jobless total even more.

The original plan was approved by the Cabinet Office on advice from the National Computing Centre, and was to form the basis of the much-criticised Youth Training Scheme (YTS) which was launched last September.

Its output could have been greater than the total number of computer science graduates from all British universities and polytechnics.

The project was put before Manpower Services Commission chairman David Young last March when £1.2 billion was earmarked for the YTS. The NCC wanted to get quick approval for a quarter of that money - about £300 million - to be spent on IT training during 1984.

NCC director David Fairbairn

estimated that 120,000 young people could have found jobs in data processing after one year and a further 240,000 after two years. Certificates were to be awarded for abilities relating to specific industries, such as retailing



## Government backs out of cable franchises

by Philip Hunter

THE government has backed away from giving interim franchises to the 11 consortia it has chosen for the first cable television services.

The consortia were offered interim franchises in December 1983 so that they could begin work on cable TV systems before the Cable Television Bill is passed later this year, but the government has turned into legal problems.

Now the government has offered the 11 consortia letters of intent instead, promising them full licences when the Bill finally becomes law later in the summer. But this has not pleased some of the consortia, which do not believe the promise of future licences will be enough to bring in the investment needed immediately for work to begin on cable TV systems.

Some of the proposed cable TV networks will cost £30 million to build and the idea of the interim licences was partly to assure potential investors and existing institutional shareholders that there would be no obstacles to the service.

Now investors are likely to wait until they see details of the final licences before committing their cash. This means a delay of six to nine months on development of cable TV, and embarrassment for the government, which wants cable TV as quickly as possible.

The problem is that the government lacks the legal mechanism to give the formal approval for cable TV services until the Cable Bill gets its Royal Assent.

A spokesman for the Department of Trade and Industry says that some of the consortia have been over-optimistic about interim licences being awarded quickly. "It was always recognised that it would be some time before negotiations are complete," he says.



DAVIGNON... Will argue that Esprit is disentangled from a crisis.

## UK urged to give Esprit go-ahead

by John Riley

THE Prime Minister and the Treasury are coming under increasing pressure to stop holding up Europe's unique co-ordinated response to Japan's long-term project to dominate computer technology.

European IT leaders are lobbying the government, concerned that there will be a gap between the end of the Esprit pilot projects and the beginning of the £840 million five-year programme itself.

The architect of the Esprit project, Viscount Elenore Davignon, who until now has steered the project through the European bureaucratic machine in record time, will forcibly argue that Esprit must be disentangled from the wider EEC budgetary crisis when he meets ministers in London next Monday.

There have been increasing reports that the Treasury has not grasped the importance of IT and that the Department of Trade and Industry has a hard time trying to put the message across.

Davignon encountered a similar attitude when he made a similar

mission to Germany recently, where the chancellor and research ministry were in favour of Esprit, but the treasury was not. That visit was successful and, according to an EEC official, "half of the job is a success".

The problem is that although both the technical details and funding for the Esprit programme are agreed, it cannot proceed until the German and the UK governments give the go-ahead. Until now they have tied it in with the wider financial problems the Community faces.

The final chance to resolve the crisis is at the research ministers' meeting on February 28. If that fails, continuity will be broken and the programme will start grinding to a halt.

Senior industry executives are pressing the government not to be too pig-headed over this, says the newly appointed director-general of the Business Equipment Trade Association, Richard Palmer.

Göthert Möller, chairman of the European Association of Manufacturers of Office Machines and Data Processing Equipment

(Lümbitz), says: "We're very happy with the idea."

The Japanese fifth generation programme is working effectively and has achieved its first results. It is important that we should be embarking on the Esprit project at the time for the Japanese progress conference this November. Every month that passes without a decision is bad for industry."

Brian Oakley, head of the ATE Directorate, says that there will be no delay to the Esprit programme, provided that the matter is solved by February 28.

"If it goes on longer it will be serious," he says. "British industry hasn't properly realised there has been a delay, as not much is happening as far as they're concerned. It has been told the bids will be invited in March, but if that doesn't happen then, it will get concerned."

The Esprit pilot projects, which got underway last summer, are fully funded until September, and the Commission says it will "try hard" to ensure that there is no disruption to good pilot projects.

## Company shake-up is brewing at Systime

by John Kavanagh

A MAJOR international shake-up is imminent at UK systems firm Systime, including the sale of subsidiaries in South Africa and the Irish Republic and the financial restructuring of companies in France and the Netherlands.

At the same time the company is putting new emphasis on selling its equipment through third parties.

This year it expects nearly a third of its hardware sales to come through systems houses and dealers.

Systime is also looking outside its traditional main supplier, minicomputer leader Digital Equipment, for a new top-end processor (see page 4).

The heads of some of the overseas subsidiaries were at Systime's

Leeds headquarters last week. The South African company, formed in 1979, has around 80 staff. It started very successfully, passing its first-year target in just six months, and its growth was expected to top 70% a year for three years at least. But this week a Systime source says it is no longer so successful.

France and the Netherlands are now the successful operations outside the UK. The Netherlands company has 33 staff and a turnover of around £2.5 million.

Systime is tight-lipped about its plans. But sales and marketing director Mike Bricliffe says: "We intend to expand overseas with the assistance of third parties."

Bricliffe was until recently

Systime's OEM director and to move reflects the importance of third party sales to the company.

Last year former managing director and founder John Cox, who left soon after Control Data took a large shareholding, set the company on this new path by encouraging staff to leave and form their own systems firms.

## ICL spawns two personal packages

by John Riley

TWO software companies last week announced software packages for ICL's new 16-bit personal computer, but ICL is still keeping details of the machine under wraps.

The delay in formally announcing the machine and its price is causing a good deal of head-scratching, particularly as it is based on Intel's 8088-based 16-bit Business Computer, which was launched one year ago.

ICL previewed the machine at the Which Computer Show. The PC is based on an Intel 8088 chip, runs concurrent CP/M, offers colour and supports up to four users.

Herman Bruce, marketing director of Systems Union, which last week launched an accounting package, SunAccount, for the PC,

attributes the delay to ICL's wish to launch the new PC simultaneously around the world.

The other software package launched this week was a solicitors' package, by Sinitrac-KPG of Chiswick.

Rair's managing director, Mark Potts, says that the ICL PC is a "very different" product from Rair's business PC, pointing out that the latter has a dual 16-bit and eight-bit processor and the proprietary Rair operating system. ICL manufactures its PC under licence and pays royalty fees to Rair.

There is speculation that Microsoft will be able to offer an emulator to offer multi-user MS-DOS for ICL personal computer users in a few weeks, and that ICL may be holding fire until then.

## IBM OEM move scares all the rest

by John Kavanagh

TOP UK systems house Hoskyns is so sure IBM is about to become a true OEM equipment supplier that it has set up a 50-strong team to deal with the expected new business.

And the company believes that when IBM starts selling its 4300 small mainframes through third parties many minicomputer and



BRINSFORD... Welcomes IBM.

microcomputer firms — and even leading computer manufacturers — could be put out of business.

"The main thing stopping IBM's move is the EEC's monopoly investigation," says Eric Robson, the Hoskyns director responsible for IBM liaison. "But we're sure such deals will come — and we've made organisational changes in readiness."

Robson says that having captured big organisations' data processing departments it wants to sell more 4300s to their user departments. This is the sort of market where systems houses are strong, with their experience of selling turnkey systems based on package or customised software.

The new deals could be true OEM contracts, with IBM selling large numbers of "empty" computers at discount to systems houses, Robson says, or an extension of the complementary marketing arrangement, introduced last year. With this scheme IBM currently

gives software firms sales leads to follow up with their packages and IBM hardware. If an order materialises the software firm gets around 10% of the hardware value.

"The current arrangement is good, but we need proper OEM-type agreements to make a real breakthrough," Robson says.

Whatever schemes IBM introduces, they spell trouble for most of the rest of the industry, Robson believes. Even big computer manufacturers could have "a limited life" and their future could depend on them finding gaps in the market. An exception will be the number two company, Digital Equipment, which is well established in the third party market, Robson says.

Mike Brinsford, a director at another IBM systems house, Data Logic, does not agree with IBM's analysis. According to a spokesman: "The new system is in addition to manual ones for town clearing. There is no immediate prospect of people losing jobs because of Chaps."



Messengers are at risk.

## Jobs are on the line as Chaps goes live

by Nuala Moran

UNION officials have warned of large job losses as Chaps, the city's computerised, same day cheque clearing system goes live today (Thursday).

First at risk are the 5,000 messengers who carry cheques around the City by hand.

But the Banking Insurance and Finance Union (BIFU) feels the threat to these jobs is just the tip of the iceberg. It says the staff who process the cheques could also be affected.

At first the system will deal only with cheques for over £10,000, but BIFU says that if this ceiling is lowered many more jobs will be threatened. At a later stage the system could be used as the transmission medium for other services, posing further job security problems.

The Banking Information Service, which represents the main banks, does not agree with BIFU's analysis. According to a spokesman: "The new system is in addition to manual ones for town clearing. There is no immediate prospect of people losing jobs because of Chaps."

When Chaps starts operating today it will only clear cheques for between £10,000 and £100,000. After one week this will rise to £10,000 - £1 million, and after two weeks all cheques over £10,000 will be processed by Chaps.

"The banks have been fore-runners in using computers and this has led to more employment, not less. And there have never been any redundancies due to computerisation," he said.

A BIFU spokesman said: "It is difficult to get precise figures on how Chaps will affect the number of messengers, but in the long-term it will mean fewer jobs even if nobody is made redundant."

"Chaps will certainly affect our members in the City, and now the technology is there it could lead to same-day clearing nationwide, so we obviously have more problems to follow."

BIFU has told the banks it is prepared to support the introduction of new technology, providing a new technology agreement is in place.

It also wants a shorter working week to help protect employment levels.

When Chaps starts operating today it will only clear cheques for between £10,000 and £100,000. After one week this will rise to £10,000 - £1 million, and after two weeks all cheques over £10,000 will be processed by Chaps.

## Data comms vote is surprise

by our Parliamentary Correspondent

THE government was surprised when Labour decided to vote against the second reading of the Data Communications Bill in the Commons last week.

Labour had not voted against a similar Bill before the election, and ministers felt it should have been more acceptable to the Opposition

now after a number of amendments.

But Labour attitude has hardened for two reasons. One is that Gerald Kaufman, a staunch opponent of the Bill in its present form, has taken over as shadow minister responsible for data protection and privacy.

The other reason is that Labour MPs were plagued, because the

government had rejected their call for the Bill to be examined by a pre-legislative select committee before its second reading. Ministers rejected the move.

A further attempt to get the Bill referred to a select committee was made last week after the second reading, but again the government was obdurate.

The Bill should have been a long-awaited, freedom-of-information Bill and a much-needed, freedom-of-information Bill as well, Kaufman argued.

Home Secretary Leon Brittan, defending the Bill, said that it was vital to achieve a balance between the rights of individuals as data subjects, and the burden on data users who collected and processed personal data.

Also in the Commons, John Burcher, Under Secretary of State for Trade and Industry, said in reply to a question from Liberal MP Clement Freud that the gov-



ernment did not give schools advice on which micro to buy under its micro in schools scheme.

MPs were also told that the government expects to decide whether to extend the computerised pay-as-you-earn scheme later this year.

The likely impact of telecommunications and cable will be included in an independent review of the Public Utilities Act to begin immediately, said Lynda Chalker, Transport Minister.

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Deputy Editor	01-661 8643	Deputy Advertising Manager	01-661 8643	Deputy Classified Advertising Manager	01-661 8643	UK 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000	UK 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000
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## Micro men join to fight multinationals

## IBM puts users in the picture

# Systemtime ignores DEC this time

## **SALES BRIEF**

### **£2m contract to automate the news**

## OCR deal

## Council picks ICL

## Water network

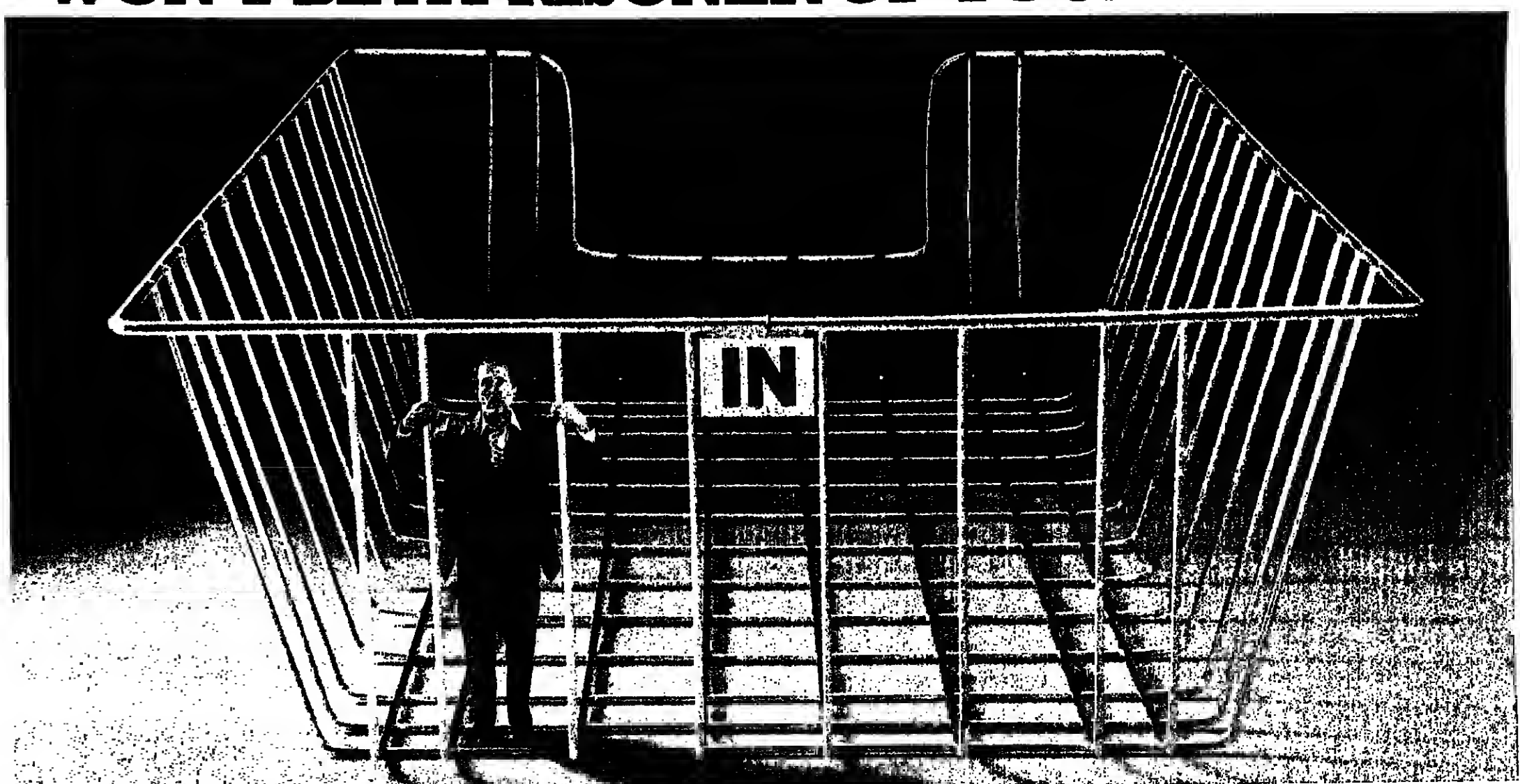
## Hoechst upgrade

**£500,000 testers**

## Paint training

**INTERNATIONAL Paint**, painting painter of ships, has bought Seicon's computer controlled interactive video painting system, worth £13,000, for teaching staff about manufacturing safety and management.

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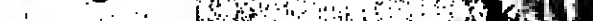
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## Brunel and Metal Box unite for CAD/CAM

The project provides work for two researchers, who will be replaced by a second pair next year.

For its part Metal Box hopes to end up with a tool making procedure far in advance of anything

## Wald General

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# Victor falls and ACT is ready

by Dave Madden

VICTOR Technologies has finally been forced into bankruptcy after creditors filed a suit against the company last Friday. Applied Computer Techniques (ACT) is set to pick up the pieces.

Victor was in trouble throughout 1983, and has been running on a cash payment basis since the autumn, but although it has cut to the bone since last August it still reported a loss of \$36.9 million on revenues of \$46.1 million in the quarter to September. The company owes some \$90 million - \$30 million to Security Pacific Bank, the rest to 1,500 other creditors, including Tandon and Multiflex.

ACT directors, including Roger Foster, flew to California to negotiate manufacturing rights to Victor's products on Sunday. Peter Oldershaw, a director of the company, says: "Victor has been in this position for some time so we were well prepared and have good stock levels. But as far as ACT is concerned demand for the Sirius 1 has never been better and there are rich pickings to be had - this is an excellent opportunity for us to enhance our international activities."

Oldershaw says that the negotiations were at an advanced stage, but there were other companies taking a close look - including Swire Pacific and three major US corporations.

ACT has already done a trial

assembly run of 300 Sirius kits in its Glenrothes factory at the end of last year, showing it has the capability to put the machines together.

Meanwhile, ACT is spending £1 million expanding the Scottish plant, just three months after its opening. The new extension will add half as much space again, and boost production of ACT's homegrown Apricot micro to 100,000 units per year by June.

And the expansion is expected to bring in another 100 jobs, doubling the number of staff employed in the Glenrothes factory to around 200 by the end of the year.

The plant, set up specifically to build Apricot, was ACT's first venture into micro manufacture. It gleaned £6 million from a share issue to do this, plus several million pounds from the then Department of Industry and the Scottish Office.

"The fact that we are already investing a further £1 million for expansion confirms the considerable success of Apricot - and of the plant," claims Chris Winn, managing director of ACT (Computers), the wing of the ACT group which looks after the Glenrothes factory.

The expansion of the plant will allow ACT to spare production capability for other products. At the moment orders for Apricot, launched last July with deliveries starting in the autumn, outstrip production rates.

## US delays speed up Commodore in Europe

by Keith Holder

THE Commodore 264 computer, the company's bid to enter small business computer market, could be launched in Europe before it makes its US debut, according to UK marketing manager, John Baxter.

He says that rumours of delays, circulating in the US, are confined to that area alone and, if anything, plans to launch the computer here have been speeded up.

The problems in the US centre around getting approval from the Federal Authorities (FCC) for radio interference. This, says Baxter, means taking the computer into a remote area, like the Nevada desert, for testing, a process which can take time, and could hold up the computer's introduction.

Speculation that the company has not yet decided on the program package for the 264's in-built writing of financial software, or that the recent resignations of

four top executives would keep the machine under wraps, are dismissed as scaremongering by Baxter.

He says that any secrecy over the details of the machine is intentionally aimed at keeping competitors guessing. Price is also undecided, though US chairman, Irving Gould, says that the machine will be priced so that it doesn't hurt sales of the popular Commodore 64.

Although it is true that four of Commodore's top executives have quit in the wake of company founder Jack Tramiel's resignation, these were no surprise, says Baxter.

Don Richard, acting president of the company's US unit, was also Tramiel's personal assistant for several years, and was expected to go with his former boss, Baxter says, and the departure of Myrdin Jones, Bill Miller and Roy Thomas were all announced at the end of last year.

## BT awaits customers for teletex link

by Philip Hunter

BRITISH Telecom's two latest text transmission services, telex and the packet switched service (PSS), can now be linked together. "We are ready to go when the customer comes to us," confirms a BT spokesman.

But customers are not likely to come until the teletex service is also capable of being linked to BT's other text transmission service, telex, later this year.

This will be made the service available to the world's million telex users, 100,000 of which are in the UK.

Teletex is based on the public telephone network, and GEC

Computers has won the initial £200,000 contract for hardware to control the switching.

The company will supply twin GEC 4000 computers and interface software to the first switching centres set up to handle connection between telex and the public telephone network. More orders are likely to follow as telex use expands.

But at present very few people have a teletex terminal in the UK, and conform to BT standards.

This is despite encouragement to UK manufacturers of teletex terminals from the Department of Trade and Industry, which set aside £4 million in March 1983 in



PALMER... Expects sustenance from his food industry experience.

## Fearful trade bodies regroup

by John Riley

FEAR of getting cut of step with the rapid changes in the computer industry has prompted two industry trade associations to look hard at their roles and relevance.

Beta, the all-embracing Business Equipment Trade Association, which covers the whole office equipment industry from paper clips to mainframes, has called in consultancy firm Connery to reassess its aims and direction.

Beta has also appointed Richard Palmer, former chairman of Associated Biscuits International as its director-general, and expects to draw on his extensive experience in foods industry trade associations.

Meanwhile the Peripheral Suppliers Association, which has increasingly found its identity becoming confused as microchips being used to drive peripherals, changed its name to The Computer and Peripherals Equipment Trade Association (Competa).

Both associations are determined to attract more members, want to be more effective lobbyists, especially to government, and want to promote standards and codes of practice, but are still unsure how to go about it.

"How do you define a peripheral?" asks Bob Britton, past

chairman of the association and sales and operations manager for US company Kennedy International.

"For example, take our latest group code recording tape system - that has the engine power of a couple of Vaxes. Defining peripherals suppliers is getting more difficult - wooliness pervades everything."

Ken Heather, the new chairman of Competa, and managing director of Fragma, says: "We decided to widen the association to invite companies with standalone systems that incorporate peripherals, and don't exclude big companies."

The question of identity and distinction between Competa and other associations is still unclear but, says Britton, "we don't want to be seen as a rival to the British Micro Manufacturers Group, but there are areas where we work together."

Similar problems are facing Beta. "We are assessing our role and taking a searching look at ourselves," says Andy Andrews, Beta's new president.

Both Andrews and Palmer expect to lobby government and the EEC on issues affecting the broad range of the office equipment industry.

## Upset contractors slam wages con

by Philip Hunter

CONTRACT programmers sometimes have to complete a two week probationary period before their appointment is confirmed, but they are normally paid for the time spent on the job, even if their work is deemed unsatisfactory.

But two contractors were recently offered a six month contract only if they agreed to leave without collecting any pay is they failed to meet the required standard during the first two weeks.

One of the two contractors, who asked not to be named because it might affect his prospects of winning other contracts, said: "This sort of move is only likely to get people who are desperate for work."

But one managing director of one of the recruitment agencies trying to sell the contract to contractor programmers, defended the idea.

He said contractors were highly paid and most of them were aware

of the standards expected of them. Clients naturally could not pay out for shoddy work. But the managing director, who, like the contractor, didn't want to be named, admitted that the controversial clause was not common in contracts. "Honestly, I can't see something like this becoming the norm."

He would not name the company offering the contract.

Other recruitment agencies agreed that contracts did not normally have this clause posing the threat of the sack without pay.

Roger Evans, a director of the VLI Group, said that occasionally contractors might be asked to work the first two weeks at a reduced rate if they lacked one of the skills specified in the contract. The idea was that the contractor would spend this time learning the skill.

But Evans said VLI would not expect contractors to work a two week probationary period with the threat of the sack without pay if they failed to come up to standard.

## NatSemi could face criminal charges

by Keith Holder

US CHIP maker National Semiconductor could face criminal charges from the US Justice Department over faulty testing of components for defence and space organisations.

This is a result of a two year grand jury investigation following the company's admission that some 240,000 devices were shipped without receiving the full battery of tests required by Department of Defence specifications.

The company was disqualified as a supplier early in 1982, though this was rescinded after 10 weeks. Now it could be charged with fraudulent and inadequate test procedures.

Spokesman for NatSemi denied that there had been any oow developments and said that an out of court settlement was still possible.

The company has also spent \$40 million in the last two years, improving its testing procedures.

Pat Brockett, NatSemi's North

European marketing director, says that any charges brought could only relate to the original incident. "We are continuing to sell in large volumes to defence contractors and organisations in both the US and Britain."

A US spokesman pointed out that NatSemi had "cooperated fully" with federal investigation and said that the company had given the government all information and materials requested.

The indictment is expected to cover not only testing in the US but also the company's programme at its Singapore facility.

Brockett says that whatever the effect of charges, they are not likely to affect the company's business.

NatSemi is currently experiencing a greater demand for its products than it can supply, in common with the other major chip manufacturers, and is planning to spend \$200 million on improving its production facilities, including expansion of its Greenock plant.



BROCKETT... Says any charges could only relate to the original incident.

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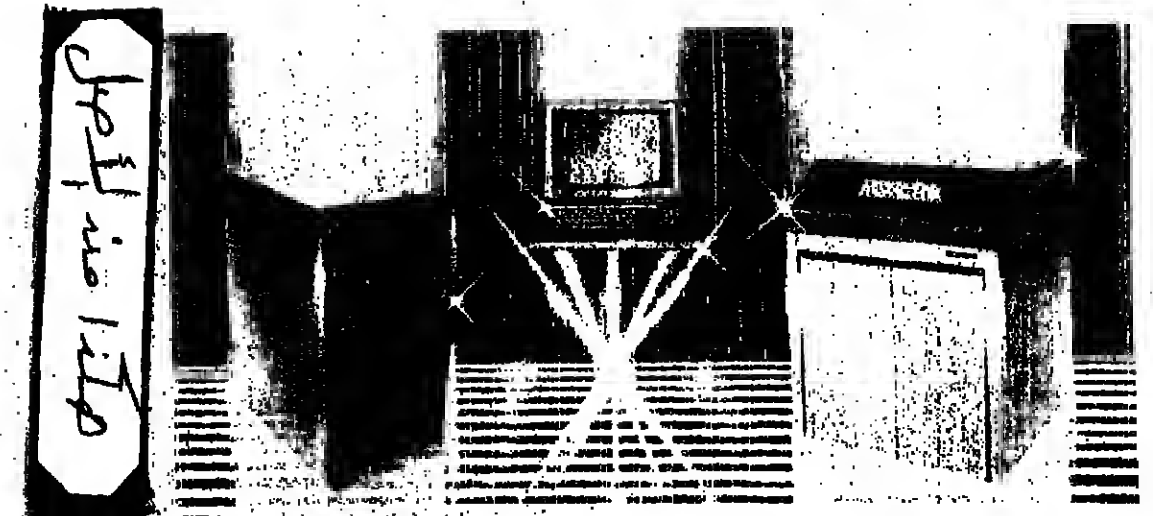
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# Prestel will link public to brokers

by Donald Kennett

THE public will soon be able to trade stocks and shares electronically with Prestel Citiservice.

Launched at the end of 1982, Prestel Citiservice has so far induced nearly 3,000 users to make an average of half a million accesses a month to its information on share, bullion, commodities, futures, foreign exchange and noit prices.

Two unit trust fund managers, Henderson and G.T., recently started accepting trading orders via their Prestel mailboxes, and IGV Information Systems, the company that runs Citiservice in partnership with British Telecom, is holding talks with de Zeeuw & Bevan and two other stockbroking firms about handling instructions

from clients electronically.

ICV managing director David Taylor says: "Our users were actively requesting this kind of facility. We thought the stockbrokers would say no, but they've said yes. Though technically we knew it was possible, frankly we thought it was some way off, the City being pretty conservative. We were surprised how eagerly the possibility was received."

A different rate of commission could be introduced for this type of service, Taylor suggests, since processing messages would be much cheaper than keeping a broker on the phone for about 20 minutes.

Three levels of service are available on Citiservice, including one which, for a charge of £90 a quar-

ter, carries information which is updated directly from the Stock Exchange floor. This level carries information on 1,500 securities traded on the market, while the basic level, which costs 5p per page of about 10 securities with no extra quarterly charge, carries details of 200, updated three times a day.

Inaugurating the service last week, Stock Exchange chairman Sir Nicholas Goodison said: "We believe very strongly in wider share ownership - a view that I'm glad to say is expressed in the government's plans. Nothing has been done to ensure that the wider spread of share ownership actually happens and this won't do it either, because it also needs certain tax changes."



GOODISON... "Significant step."

## Unix achieves a French break

by Jack Gee

THE French market for Unix, which accounted for only 1,500 systems in 1983, is likely to double this year thanks to the success of the Western Electric operating system as an international standard, the growing interest by users and the full scale commitment of manufacturers.

More major company users in France are demanding Unix. The State-owned Credit Lyonnais Bank has set up a team to learn about the product and is making contracts in readiness to buy source programs. The Renault vehicle firm is also showing interest.

French software service houses are also preparing for the onslaught of "super" micros under the Unix banner. CISTI, TECSI, Sysca and CAP-Gemini-Sogeti have set up their own study groups for this purpose.

So far the Unix environment in France accounts for only a dozen

programs. Small software houses such as Unixsys and CIL are developing and selling Unix tools for videotex applications.

The breakthrough for Unix in France lies at hand with the commitment of Bull, the State-owned computer group. Until now the standard bearer has been Thomson with its imports and domestic production of Fortune's Micromega.

The Micromega represented 700 of the 1,500 Unix systems marketed in France last year, a fair achievement, although Thomson had been aiming for about 2,000, which made it the biggest Unix base in the country.

Electronique Serge Dassault, the electronics arm of the Marcel Dassault aircraft group, which is now 51% State owned, has undertaken to deliver 500 Unix systems for the subscribers' complaints department of French Telecomunications.

## Plot in a suitcase

THE skill of a dishonest telex operator - and a large suitcase - were all that were needed to perpetrate a \$7 million fraud from a City bank, the Old Bailey heard last week.

Colin Hart-Leverson, prosecuting, said Laurence Tomsett, telex operator at Credit Suisse First Bank in London, used his knowledge of cash movements to divert the money to the account of his partner, Colin Howard.

He sent a bogus telex message to Morgan Guaranty Trust in New York to get the money sent to the account of Israeli Bank Leumi in Geneva.

The suitcase was to carry the money away. Howard had presented himself to the bank in Geneva

saying he was an intermediary in a big business deal.

The scheme was well-timed because the telex was sent to arrive on US Thanksgiving Day. The banks were closed, so no one outside the US could check the message.

Great steps were made to remove all traces of the bogus message. But the memory of the Credit Suisse's computer was examined and the telex was found. The police were called.

Tomsett and Howard pleaded out guilty to conspiracy to steal \$7 million and falsifying a telex message to deceive Morgan Guaranty Trust Bank in New York in November 1982.

The trial continues.

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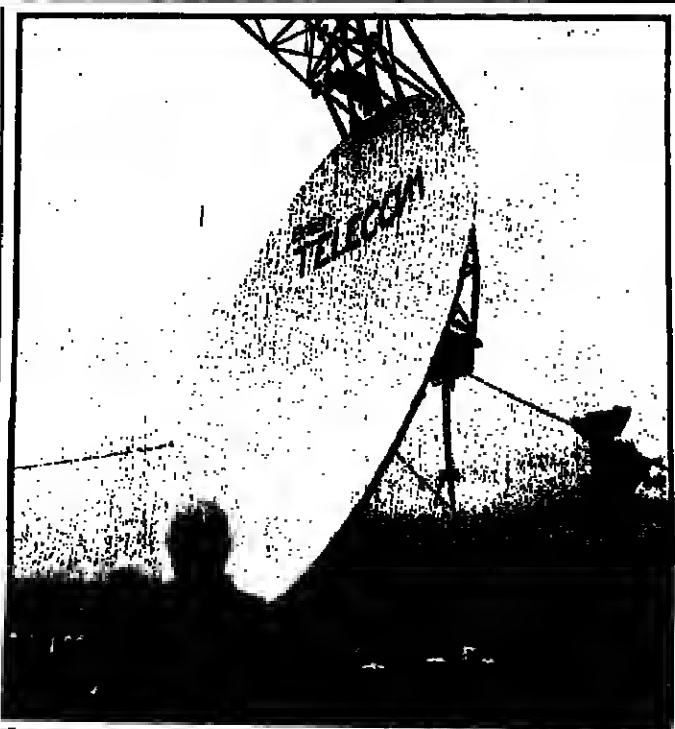
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Improved design from British Telecom.

## BT scores dishy first

by Donald Kennett

BRITISH Telecom has scored another world first with an improved design of satellite ground station antenna.

The new design will meet the requirements for international plans to position satellites closer together, so as to increase the number of geostationary orbital slots from 120 to 180.

It is based on the shape of an optical telescope built by the 17th century Scottish mathematician James Gregory, and although this type of antenna is used in astronomical research, it is more complex, and more expensive to make than the more common types of dish antennas.

BTI is preparing to launch its Sustrum North America service with Teleglobe Canada to provide the first satellite-based end-to-end digital links across the Atlantic.

has a higher signal gain and lower

wind resistance than the usual types.

BT is the first to put it into commercial service in communications. It was also first with the traditional type. Its US partners used a cat's cradle of towers and wires for their end of the link.

Two prototypes of the antenna have been built, one by Epic Precision Engineering for rooftop installation at Basing telephone exchange in London, the other by Rascal Antennas for BT International's ground station at Madley, near Hereford. They will be used with an Intelsat V Atlantic satellite and with the ECS European Communications Satellite.

BTI is preparing to launch its Sustrum North America service with Teleglobe Canada to provide the first satellite-based end-to-end digital links across the Atlantic.

has a higher signal gain and lower

## Germans bid for share of UK mini market

by Nuala Moran

GERMAN mini manufacturer Computer Technik Muller (CTM) has announced that it will compete for a share of the UK market. It is having talks with distributors and OEMs offering its latest machine, the CTM 9032.

The 9032 was launched in Germany last July, and CTM has sold 96 systems so far. Although it claims this was the first German 32-bit for general business applications, in the UK it is aiming strictly at vertical markets.

Klaus Lautemann, CTM export manager says: "We want to capture 5% of the UK market in the £10,000-£15,000 range. This is a big market and our strength will be the integrated system we offer."

"We have budgeted DM500,000 for advertising and support over the next three years. With this and the 9032 we have a good chance of cracking the UK market."

CTM, based in Constance, West Germany was set up in 1972. It has 529 staff including 110 in research and development. Total sales last year were about £40 million - an increase of 12% on the previous year. About £25 million of this was in domestic sales.

The company's biggest export markets are Austria, Switzerland and France, and it is also represented in Denmark, Belgium and the Netherlands. It sees the UK as its next move in expanding across Europe.

CTM already has one software partner in the UK, Slinn Systems of Sheffield. Slinn first wrote a package for CTM's machines about six years ago and there is a user base of seven. The package is for steel stockholders and merchants.

has a higher signal gain and lower

## Intelligence deal signed with US firm

SPL International has signed a OEM deal, to cover Europe, with the US maker of hardware for artificial intelligence applications, Machine Intelligence. Under the agreement, SPL will develop the US company's VS-100 image analysis tool for process control applications such as counting the numbers of parts passing on a conveyor belt.

The work will be done at SPL's industrial division at Stockport, Cheshire.

## CPS to go USM

STOCKBROKER L. Messel will bring CPS Computer Group, an IBM systems house based in Warwick, to the Unlisted Securities Market later this month. CPS hopes to raise £1 million from an initial placing of 10% of its equity, which should value the company at about £14 million.

CPS's business includes the sale of IBM mainframes and distributing add-ons for the IBM Personal Computer. CPS had pre-tax profits of some £450,000 in the first quarter of its current fiscal year against £750,000 in the full year in 1983. It started life making ordnance.

## Hong Kong bid

CABLE & Wireless has made a £300 million cash bid to take over Hong Kong Telephone in which it already had a 38% stake. Cable bought 34.8% of Hong Kong Telephone last March, and it was obliged to make a general offer when it took its shareholding over 35% on Sunday and triggered Hong Kong takeover rules. Cable and Wireless will have to borrow to fund a full takeover, though the bid is conditional on its acquiring at least 50%.

## Quest wants Raw

QUEST AUTOMATION has an agreement to buy Raw Computers, which designs and builds microcomputer peripheral products. The company will form a subsidiary of Quest International Computers. The deal should be completed on March 1. Quest will take on Raw's liabilities and will issue 375,000 ordinary shares in exchange for all of Raw's issued share capital. Raw will be renamed Quest International Computer Technology.

## Not appreciated

COMPANIES are not bothering to prepare their managers for the new technology equipment that they buy, complains a report published last week. Based on a survey of 153 companies using word processors in the UK, the report finds that only one quarter had sent managers on a technology appreciation course, though 80% of such courses cost less than £100.

## Office seminar

OFFICE Technology (OIT) is the only UK company among five suppliers of office automation equipment chosen to address an audience of 200 users at the City Conference Centre, London, next Thursday, February 16, by the Information and Word Processing Association (IWPA). The other four, all US firms, are IBM, Wang, Rank Xerox and Data General.

## Distribution deal

SPECTRAVIDEO Ltd has been set up in the UK as exclusive distributor of home computers from Hong Kong-based Spectravideo. The company is 100% owned by Ach & Newman which imports photographic equipment and is itself part of Coutinho Caro, a London trading company. C&N Computers of Weston-super-Mare was the exclusive agent for Spectravideo products, and it will be retained as a distributor selling 10 specific retailers.

## NEWS ANALYSIS

# Mixing fax and teletex draws near

Donald Kennett examines progress towards a new standard

THE slow progress towards integrating text and data transmission services into a single desktop terminal could take a significant step forward next month when a new standard for combining teletex and facsimile transmission is expected to be accepted.

The protocol for mixed mode teletex and facsimile transmission was proposed by the French telecommunications administration in 1979. It has since been under development in a working party of the CCITT (International Consultative Committee on Telegraphy and Telephony) Study Group Eight (SG8), which deals with telecommunications (information technology) services.

The working party coordinator, Yves Chauvel, says: "I think there is a general agreement on the necessity for this recommendation (standard), therefore I am optimistic that it has a reasonable chance to succeed."

"Any problems it might face come from a poor understanding of what is required rather than actual opposition. Teletex and fax are two different worlds. Fax is from telecommunications people and teletex is from telematics people. It is difficult to be well understood by both."

The protocol, called S.A. when it was given draft status in 1982, will be voted on in the SG8 meeting from February 27 to March 9 and if passed will be ratified by the CCITT plenary meeting at the end of the current four-year study period, this autumn.

It will also be discussed this month in standards-setting groups of ECMA (European Computer Manufacturers' Association) and ISO (International Standards Organisation), so that they can submit their comments to the SG8 meeting.

AS well as its sponsors in the French administration, S.A. enjoys the enthusiastic support of IBM, whose support in the past has transformed a good idea, or even a mediocre idea, into a busy marketplace activity.

An IBM spokesman says that the company regards S.A. as a "coherent and useful piece of work which we believe will aid international standardisation."

He emphasises that the company also supports similar projects in ISO (International Standards Organisation) and ECMA (European Computer Manufacturers' Association).

But the various bodies working on information technology standards, including these three and the US IEEE (Institute of Electrical and Electronic Engineers), have in any case been making increased efforts to work together. This is particularly so since the IEEE's work on turning Xerox's Ethernet into a standard for local area networking threatened to knock ISO's and CCITT's work on

Open System Interconnection into a cocked hat. Coordinator Yves Chauvel says that the S.A. working party has made heavy use of inputs from ISO and ECMA and that if it succeeds it will be the first jointly developed recommendation.

A paper published in IBM's *Systems Journal* last year carries a cost analysis of teletex, which shows it in a good light compared with telex and the postal service in West Germany in 1981.

Transmission of a four-page document by teletex is shown to cost between six and 19 US cents, depending on distance and time cost of day transmitted, compared with 89 cents to \$4 for a telex message of the same length and 94 cents for a letter. The 94-cent letter cost is made up of first class postage plus an average internal distribution cost which is not applied to telex or teletex.

The paper, by an IBM engineer in the US, says: "Teletex has the potential to become a major force in telecommunications and to create a large business opportunity for communicating office machines. It has the flexibility to extend its current capabilities and to provide for future services, and by utilising new networks."

The three methods by which new capabilities may be added to teletex, the paper says, are private protocols, national requirements and CCITT recommendations. A manufacturer or nation may create a problem of incompatibility by providing capabilities that others do not support, it adds.

But it concludes: "This approach allows a truly international implementation that will benefit all users."

Teletex has been criticised for having no means of authenticating messages. While telex messages are received on dedicated terminals, with a recognisable typeface, teletex messages are received on word processors, which could be made to produce an apparently authentic message locally.

One answer to this is to support the transmission of signatures and company logos by using facsimile techniques. It would also give the service greater flexibility by allowing diagrams and other graphic images to be sent.

Reservations about S.A. are expressed by both manufacturers and telecommunications administrations, mostly on the grounds that it is too early to specify such a facility when basic text services have barely started.

But the danger is that a *de facto* standard would be established from a proprietary source during the next four-year study period. Wang launched in October a device, the Professional Image Computer (PIC), that digitises images and allows them to be cut and mixed with text, while IBM's DCA (Document Content Architecture) allows for mixed mode content.

Incorporation of the standard into services actually depends on manufacturers using it in the devices which provide the service.

GECC researcher Mike Biggs says: "It might be better to drop it and pick it up later, but it could be accepted with reservations. Most CCITT standards have paragraphs which are left for further study - X25, for example, in 1976 had many areas marked for further study."

"We're keen to track the standard, but extra features cost the user money - especially on single-user equipment."

British  
**TELEMercury**  
COMMUNICATIONS

Messages sent by teletex can be authenticated by transmitting company logos by facsimile techniques.

Facsimile manufacturers point out that S.A. uses CCITT's Group Four digital transmission principles, which have yet to be fully defined. The bulk of the market today is for Group Two, while Group Three is the fastest growing - both of which are analogue standards. The Japanese are big users of fax

and are expected to be early implementers of mixed mode techniques. Nippon Electric's UK general manager for transmission terminals, Derek Arnold, says: "When mixed mode comes about, NBC will be one of the major players in the business. But Group Three will have ASCII capability and RS-232 interfaces, so

everybody asks 'what's Group Four?'

"The flavour this year is lower cost Group Three with higher capabilities, such as autodial and store-and-forward."

Alan Pugh of Matsushita Graphic Communications Systems says: "Manufacturers are still struggling to make basic teletex

work and the academics come along saying 'there are some enhancements'. There's a lot of debate which hasn't yet taken place."

Meanwhile, four of the five companies with equipment that was to have been subsidised by the UK government from last October have yet to get approval from British Telecom for their devices.

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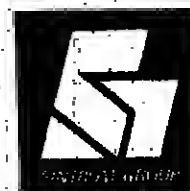
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## SOFTWARE FILE

# Weapons spread in pirate war

NEW weapons in the war against the software pirates are emerging from such unlikely origins as Tel Aviv and Chippenham.

The Israeli method comes from Adi Shamir, mathematics professor at the Weizmann Institute. He has designed a disc drive that produces pulses when running a program, which cannot be reproduced when copying it on a home computer. He has coupled this with a technique for making the user's disc drive cancel in-built pulses at each run, so the number of runs can be controlled.

The snag is that Shamir's invention, announced last autumn, has to fight its way out of academia through the notional bureaucracy

and into the marketplace. He is getting together with Ami Herzberg of Technion, an Israeli software house also researching the problem of piracy, to look for effective international marketing channels.

Elene Winer, director of the country's software exports, says: "We have a lot of innovative talent and all it needs is for the right big company to show our experts how to sell their ideas."

Israel's "Silicon Desert" now has 80 firms, including several that specialise in piracy solutions, such as S3 and Delendak.

Meanwhile, back in Wiltshire, Keith West of Harvest claims to be ahead of the Israelis with a wholly



WINER... "All we need is the right big company to show our experts how to sell their ideas."

software solution to the problem.

"The program prevents a user from running it if he is not authorised to do so. We've had it going for a year and challenged people to crack it and they have failed," he says.

Having overcome the fear of piracy, he says the way is now open for software rentals to take off. He

is trying to set up a network of 300 dealers nationwide to rent programs by the month.

"It's the same approach as video," he says. "Many people have been scared to commit themselves to buying at a high cost when they didn't know what it was all about. Now they can return it if they don't like it."

The battle for reform of the copyright law goes on. The Federation Against Software Theft (FAST), including IBM, ICL, DEC and the British Computer Society, meets at the end of this month. It will debate a proposal to back a Private Member's Bill which would ensure that software is covered under the law.

## Shopping over the terminal arrives

by Claire Gooding  
SOFTWARE shoppers in Britain will be able to buy games and other products "over the terminal" this spring in an experiment that could revolutionise software distribution. W. H. Smith, Rumbold and Dixons are among retailers at present discussing the electronic distribution scheme with UK firm Prism.

Prism signed with Romox, the New York originator of the technique, last July. It is now setting up a pilot scheme, which will bring the UK in line with the US and Europe, where the system is already up and running.

In Paris, Communication Telematique is already using the Romox special cartridges and terminals to send software down the line to terminals in 20 large department stores. There is also a pilot scheme being conducted by Oy Teledato in Scandinavia, including computer stores, video shops and TV chain, planned to expand to 100 terminals by the end of the year.

All the terminals in the UK and Europe will connect with Romox's central mainframe in California, which provides a pool of games and other products. These can be browsed through in menu form, and when the buyer has made a choice, the software is then written to a special cartridge.

The Romox cartridge carries an EPROM (erasable programmable read only memory), which can be re-programmed in minutes without being removed from the cartridge.

Romox is applying to patent the technique, which, according to Prism Software Products managing director Steve Wood, holds many benefits for both buyer and retailer. "The whole value is that buyers can get new software immediately — it only has to be loaded overnight, and there is none of the delay involved in packaging and duplication."

As well as the immediacy for the buyers, the quicker "life cycle" for products will benefit software houses, claims Wood. "As well as immediate distribution, there is less of a copyright problem. I envisage volume sales — that is, the bulk of sales for new products — made through electronic distribution, then the cassette will follow."

Once a buyer has bought one of the EPROM cartridges, it can be re-programmed again and again as new products come in. In the US Romox charges between \$15 and \$25 for the cartridges, with software costs for individual products ranging between \$6 and \$25.

In the UK Wood is still negotiating with software houses for distribution rights, but hopes to woo them into committing their new titles exclusively to the Prism experiment. "The success of the system depends on the price and the quality of the software we offer. I will be using some stuff from the US, but not all."

Wood has already reached agreement with two British software houses.

W. H. Smith is more cautious, but nevertheless very interested in the Romox technique. "It's all a bit speculative. We've expressed an interest," says national merchandise controller Stewart Biddle.

"The implications are profound for the industry — we may finish up retailing in a totally different way."

**Logica support**

LOGICA's relational database support, has gained more support this time from GEC Computers. GEC has signed with Logica to market and support Rapport. The database already runs on the GEC 4090 and 4100 series of machines.

## SOFTWARE FILE

## UK could miss the Ada boat

BRITAIN is in danger of missing the Ada boat unless the government gives strong signals of its commitment to the language.

This is the view of Rohn vice-president Dennis Paboojian, who is currently touring Europe to promote his firm's compiler. He says he has found far more sense of purpose concerning Ada in France, Germany and even Italy and Spain. He criticises British software houses, which still seem confused over the government's attitude to real time languages and therefore stuck to either Coral for military use or Pascal for civilian use.

Rohn's compiler, jointly developed with Data General, became the first to be validated by

the US Defence Department (DoD) last summer. It has since been followed by the Western Digital compiler and the New York University interpreter.

Paboojian's remarks come as the British government's £9 million MCHAPSE scheme remains tangled up in negotiations by its sponsors. The scheme collapsed last year when British Telecom pulled out of the deal and opted to carry on its research into Chill separately. The Ada Group — a consortium led by ICL — is struggling to resurrect the Ada half of the venture, but talks on who pays for what are still deadlocked.

Paboojian's aim is visiting potential clients, such as Westland Helicopters at Yeovil and the De-



PABOOJIAN... "It seems to be only in Britain that there is scepticism about Ada."

fence Ministry's RSRE division at Malvern, is to ally British firms that Ada "might not happen after all".

He points to clear directives issued by US Defence Department under-secretary Richard Delauer in June and December of last year, laying down the timetable for adopting Ada. From January 1984 advanced development would be

in Ada and from July 1984 all full-scale engineering development.

Paboojian sees no possibility that it will retrocede those statements or grant wholesale waivers to software writers. "Ada has hit all the milestones that the DoD has set for it, whatever the problems encountered by Softech or Intermetrics," says Paboojian.

"There is no scepticism about Ada in the US any more. It seems to be only in Britain that there is." Britain's lack of initiative is reflected in the small number of people now working in the Ada area, he says. He thinks there are now more than a few dozen capable Ada engineers in the UK, whereas the US figure is already well over the 500 mark.

## IBM DMS package is rated a turkey

NEARLY one third of users of IBM's DMS package feel they have not gained any benefits from it, according to a survey by IBM watcher, Xephon. One user even told the Berkshire consultancy that DMS is "a turkey".

Xephon asked over 200 US users for their views of six popular applications generators. Cincom's Mantis comes top on overall satisfaction and also scores the highest marks for reliability and value for money. Runner-up is Information Builders' Focus, praised for ease of installation and use.

Cullinet's ADS-Online, IBM's ADF and Oxford Software's UFO come in the middle bracket. ADF scores well for reliability, which is just as well, as its vendor support and training are criticised. Both IBM products, ADF and DMS, come off worse than all the independent rivals.

DMS is the only package to be called poor value for money, though Focus shows up poorly in documentation and vendor support.

## Expert pleads case for safety control

INDUSTRY is not interested in the risks of using software to control safety, an expert has complained.

It only pays lip service to the problem, says Phil Bennett, former computer manager for the British Steel Corporation and an adviser to the US Defence Department on the Ada language.

Bennett told a meeting of the Institution of Electrical and Electronics Incorporated Engineers that there was a need for fundamental research into the use of software as a control element. He hoped the Alvey Programme would contribute to this and not concentrate solely on new tools and environments.

Bennett defended Ada against criticisms of the language made by Professor Tony Hoare of Oxford University. Research had shown that strongly-typed languages, such as Coral, RTL2 and Ada, limited the scope of errors and reduced fallibility.

In an implicit criticism of the Alvey approach, he cast doubt on the value of formal specifications.

"They have their place," he told the meeting, "but if the plant manager can't understand what is required, how good are they?"

A new report just published by Basil and Perrine finds that 48% of errors detected in two systems — one on an IBM 360 and the other on a DEC PDP10 — are due to specification problems.

"That just shows we aren't getting any better," commented Bennett.

Barry Daniels, a senior engineer at the National Centre of Systems Reliability, regretted that software was still not amenable to quantitative assessment. But he added that the centre hoped to be able to extend the use of quantification in risk evaluation on the basis of current research.

Ron Bell of the Factory Inspectorate said in one case a software fault had led to a "very serious explosion indeed" at a major company in this country. A programme change crept in undetected while the systems team was working flat out and under pressure.

## Concurrent CP/M sweetens the Apricot

by Claire Gooding  
PRODUCTIVITY improvements of 30% and upwards for users are claimed for the first applications to appear on the Apricot under the Concurrent CP/M packages. The packages are being launched by London software house Graffcom at the London show devoted to ACT's Sirius and Apricot machines this week.

According to Robert Owen, managing director of Graffcom, the packages are the first Apricot applications available under Digital Research's multi-tasking single-user operating system.

"These packages are very new. They've only been available on the Apricot for two or three weeks and as far as we know they are the first Concurrent CP/M packages."

"We're expecting to run a promotional deal with discounts of 30% or so for contracts signed at the show," he says.

Software File is compiled by George Black



OWEN... "Excellent results."

The packages are Graffcom's staple product, the ISBS/F range of financial modules, normally priced at £220 each on the IBM XT, the WP2020 word processing package, and the newest Graffcom product, the Osmar suite of integrated office software. All three have been designed and written in-house by Graffcom.

"We're pushing Concurrent CP/M as the ideal environment for running business applications," says Owen. "We've had excellent results ourselves and believe that Concurrent offers vast improvements for the single user."

"You get better continuity of work," he adds.

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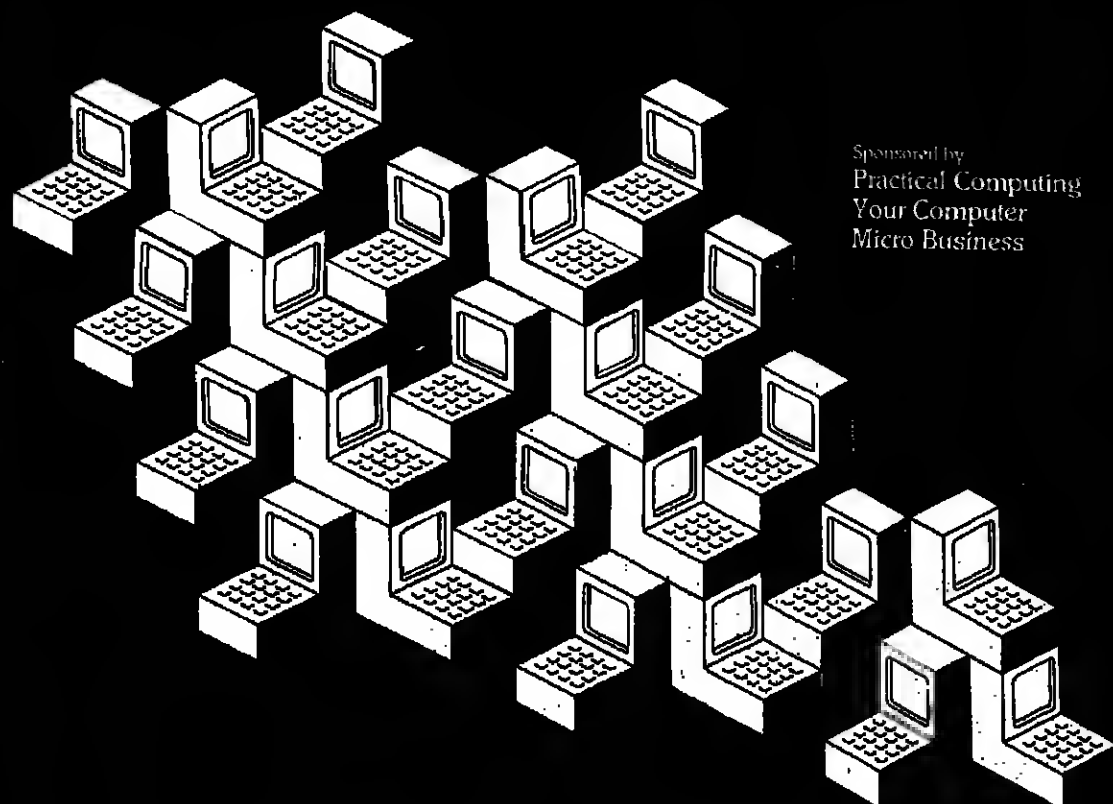


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The fair will be held at the National Exhibition Centre, Birmingham, from May 4-7, 1984. It is a must-see event for anyone involved in the computer industry. The fair will feature a wide range of computer products and services, including hardware, software, and training.

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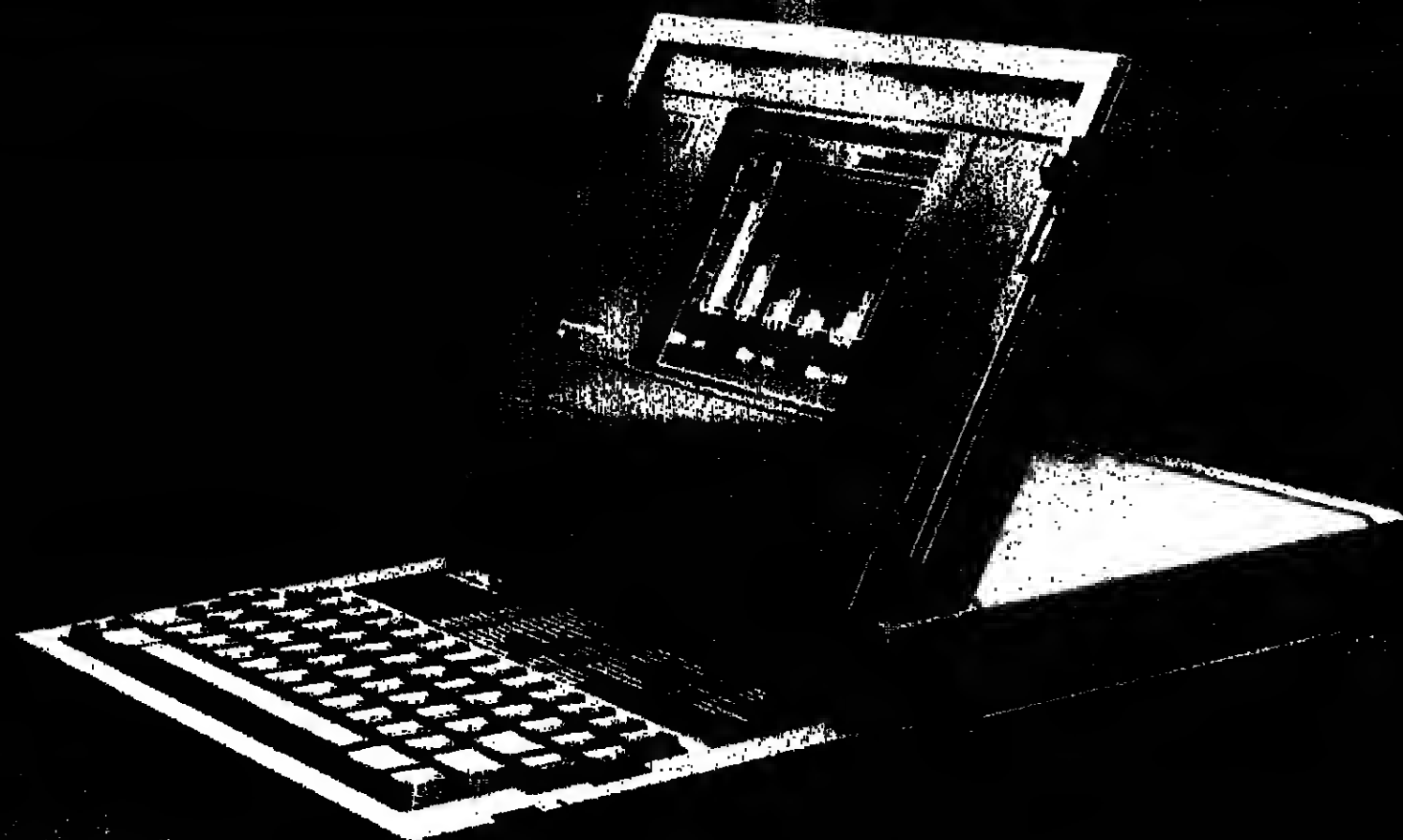
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By now you'd think it impossible to get executives to part with them.

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Could we, someone asked, take the best features of the IBM, take the space of half a briefcase and come up with a more personal, personal computer?

The result of this challenge is the Grid Compass. In its own way becoming standard hardware for those who need to work as effectively outside the office as in.

Although weighing only 10 lbs, the Grid is far from light on power. There's 512KB of RAM. Another 384KB, a whole double-sided diskworth, of bubble memory.

Unlike the humble portable, Grid has a full-size screen display. And with its MS-DOS operating system, you can run all your familiar PC software.

Like WordStar, Multiplan and Lotus 1-2-3.

Grid's own software should prove instantly familiar too, be it a spreadsheet, database, word-processing or graphics package. Because learning to use one program teaches you to use them all.

Grid even has its own, integral telecommunications modem. So along with giving you on the spot answers, our personal can take your data, process it, model it, graph it, transmit or print it out anywhere in the world.

**SEE US ON STAND 816, INFO '84, 21-24 FEBRUARY**  
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Finally, you'll notice the Grid doesn't come out of something looking like a sewing machine box.

In its elegant, black magnesium case, it's as personable as it's personal.

But as you might expect, there's a price to be paid for such an exceptional machine.

Should you have an ordinary desk job, your company may well decide it's unaffordable.

But should your office usually look more like a restaurant, or a construction site, or someone else's boardroom, they may well decide it's indispensable.



**GRID**  
It isn't for the ordinary desk job

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### MICRO NEWS

#### Chip will set up open networks to link micros

NINE TILES, the company that developed the operating system for Sinclair's ZX81 and Spectrum, has launched an interface chip for creating open networks between micros.

The LSI interface chip is now available for Epson QX10, Apple II and IIC, BBC micro, S100 and DEC Unibus systems, and director Dr Kate Grant says others will follow.

There is also a multi-link node chipset for manufacturers to incorporate networking into their products.

Grant says this is the cheapest open networking device available. The BBC version, for example, has an end user price of £99, about £45 for volume orders.

The chipsets will be built under licence by Hawker Siddley. Support software, including CP/Net implementation and a network filing system, is available.

Grant says networks using a mixture of micros is not only possible, but has distinct advantages for users.



HOLWAY... Top priority.

#### Scientists work on miniature micro

by Philip Hunter

A POCKET computer little bigger than a credit card is being developed at the National Physical Laboratory in the hope of breaking into the French-dominated smart card market.

The idea is to produce an intelligent memory card for widespread public use in paying for retail goods, unlocking security doors, and buying time on cable television.

Unlike other smart cards being developed, NPL will carry a small keyboard.

The product is at the planning stage and will not be ready for market until 1986, according to Peter Hawkes of NPL's electronics and information technology division.

But when it arrives it will be sweetened for public use by having all the functions of a powerful pocket calculator.

It will also need to cost under £10 if the public is to buy it. Hawkes adds. Then it should have a chance of becoming widely-accepted for cashless transactions, although NPL points out that there will be competition.

The French government is investing heavily in intelligent memory cards from Bull and Philips, and Japanese and US companies are starting to get work un-

der way. Hawkes says a prototype could be ready this year, embodying all the functions of the final product. But the prototype would be bigger than the final product because it will not be possible to put all the functions into a device the size of a credit card until further developments in VLSI technology.

One particular reason for needing advances in VLSI is that the NPL wants to apply the so-called public key encryption system for the generation of digital signatures to make the device secure for point-of-sale and security applications. The programs needed to achieve this are still much too big for any current memory card.

Hawkes hopes something useful will quickly come out of the Alvey programme, and suggests Alvey might take over part of the NPL project.

The new microcomputer will have a non-volatile memory so that it can work in offline as well as online mode.

At present the project is part of a larger programme on automatic transaction, by the Tokens and Transaction Control Consortium. The 15 members of this consortium include British Telecom, Abbey National Building Society, Ferranti, CAP, ICL, GEC and the Post Office.

#### Toshiba is close to chip goal

THE next generation of gallium arsenide (GaAs) "super chips" is a step closer, claims Toshiba, following its development of low defect level wafers.

By combining a vertical heating system and computer controlled pulling with the liquid encapsulated Czochralski (LEC) method, the company claims to have produced a GaAs wafer with the world's lowest dislocation density level of  $10^3$  per cm<sup>2</sup>.

Phil Pittman, Toshiba's UK general manager, says this will increase the yield of finished chips and allow more sophisticated circuits to be used. These devices will be important in the future, he says, as the basis for the so-called super computers, as they offer higher speeds and a lower power consumption than conventional silicon devices.

## Hoskyns goes for big user gold

by Keith Holder

HOSKYNs, the London systems house which specialises in serving the Times top 1,000 companies, is offering a new microcomputer service.

From this month, the company will run a "Gold service" package for corporate users of micro systems. It will include price discount, service and software packages.

Hoskyns has increased the number of micros that can be bought directly, and now offers IBM's PC, PC/XT and XT/370, Digital's Rainbow, the Hewlett-Packard HP150 and Apple's Lisa.

This year should also see the addition of Apple's Macintosh and IBM's PCjr (Junior), says marketing director Richard Holway. "The Macintosh promises good communications with IBM PC networks," he adds.

But Holway admits that IBM has not yet announced any plans to

bring the PCjr to the UK and there is some speculation it might decide against this.

Hoskyns also offers a package of peripherals, including add-on memory and printers.

"Large companies have already discovered the benefits of dealing with a single source of supply," says Holway, "and we can go further by offering a tailored package of support, training and seminars to keep our users well informed."

Along with the hardware the company will market Mathematica's IT series of software, which Holway describes as "the first truly integrated range of personal computer software, specifically designed for the corporate user."

"The heart of this is KeepIT, a menu-driven relational database, to which can be added products like Lotus 1-2-3, Spellbinder and a series of IT packages which cover mainframe linking, multiple

window file editor, with mouse support, 16 colour graphics and electronic mail.

Mathematica was one of the first companies to talk about developing systems to exploit "user power" and has already produced Ramis II, which has enjoyed massive worldwide sales.

"Taken together, the IT series gives users the communications facilities they really want," says Holway.

"I firmly believe that communications is the number one priority for all corporate users."

The IT packages are ready to run on the IBM-PC and XT, and will soon be available for DEC and Hewlett-Packard machines, says Holway.

KeepIT will sell for £300, and the other packages range from £80 to £340.

The company is providing on-site service and support for all machines and peripherals sold.

#### Boston tool adds more to DEC's Professional

by Keith Holder

SOFTWARE tools to turn Digital Equipment's Professional microcomputer into a low-cost microprocessor development system have been launched in the UK.

Software Sciences will act as distributor for this latest development from US-based Boston Systems Office.

Vaughn Orchard, product manager for Software Sciences, says: "With prices starting at £5,000, it is the lowest-priced universal development system available."

The software includes assemblers, symbolic debuggers and utilities for the Professional 350, using the P/OS operating system.

Processors supported by the system include Intel's 8086/87/88, 80186 and 8085, with National Semiconductor's NSC800.

Software Sciences also distributes BOS products enabling use of the Professional as a workstation to Vax and PDP-11 systems.

## Hoskyns...



### Making computers work for you

For the last 20 years, Hoskyns has helped thousands of Britain's major companies into the computer age. Now that the world is becoming more computer orientated it is even more important that you choose Hoskyns for the systems and services that will enable your company to get the very best from today's information technology.

Through Hoskyns you have access to the collective experience of twenty years successful operation in this rapidly advancing field, the technical excellence with which the name Hoskyns has become synonymous, plus the unrivalled resources of one of the world's largest computer services companies. At Hoskyns the commitment we have to the computer industry means that our clients will be guided securely and expertly into the rigorously demanding future which lies ahead. Hoskyns Group Limited, Africa House, 64-76 Kingsway, London WC2B 6BL. Tel: 01-242 1951.

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## PLATFORM

# Why a standard Cobol is vital

COBOL evolved in the early 1960s under the guidance of the US Defence Department, whose purchasing policy greatly influenced the direction of the major computer manufacturers' efforts in the development of languages.

The majority of the work of maintaining and developing the standard definition for Cobol still takes place in the US and Canada. There is some contribution from the rest of the world in setting the Cobol language standard, as most

ities, or having similar needs, such as financial planning, it has become practical to acquire packages to carry out the required applications.

Such acquisitions eventually reduce coding commitments by one site; they also reduce considerably their future maintenance requirements. Clearly the availability of packages in a standard language would enhance their attractions.

An eventual benefit is that systems and programming staff will have more time to spend with their individual applications users, whether they are other departments in the same company, or customers of their bureau.

**At first, I did not realise the whole process for creating and controlling the Cobol standard was so convoluted**

commercial programming, in both installations and software houses, is carried out still in Cobol.

Leaving aside James Martin's fundamental questioning of the need for Cobol, why do we need a standard for Cobol? I work in what might be considered a medium-sized site. It uses a Sperry 1100/61 processor with a special Cobol accelerator and has invested in the region of 200 man-years in Cobol programming, comprising approximately 2,500,000 lines of code currently in use.

That investment is neither lightly discarded nor easily converted to a new manufacturer's dialect of Cobol (estimates vary from 20 to 50 man-years to carry out such a task). In addition, it has become important to the site's medium- to long-term planning to avoid being locked into a specific supplier.

To ensure that this aim is met, our library of programs must become truly portable between any number of systems and compilers. There remains the long-standing problem of the different internal codes and file structures of different computer systems but that can be more easily over come if they all speak the same language.

With the emergence of network and OSI (open systems interconnection) standards there is hope that a code structure such as ISO ASCII will become a recognised interchange standard.

We can give the setting of an interchange code standard a definite prod in the right direction if we present a strong, united front on the whole issue of standardisation.

A prime reason for needing a standard Cobol language definition is that for organisations operating in similar areas such as local author-

ities, it will be possible to adopt proper programming methodologies which themselves eventually become standard techniques. The benefits are universal in that better programs are created, there is less maintenance commitment, and consequently more time is available for us all to catch up with those seemingly inexhaustible backlogs of development requests.

Inevitably, there would be greater programmer mobility, but this would be compensated by the swifter integration of new staff due to the standardised training methods facilitated by standard Cobol. If there is little willingness currently to be involved in the standards-making process, then computer management can hardly beom the current difficulties of recruiting trained, effective programmers who many of their installations are unwilling or are unable to do their own training.

Since the end of 1981, I have been a member of the British Standard Institution's (BSI) ad hoc Cobol working party, WG3, and in June 1983, I was invited to join the NCC's Cobol Standards Group. Why did I become involved?

I consider the time has come when more Cobol users should participate. This does not have to

be a personal and professional interest, but more importantly, I am unwilling to leave it to someone else.

At first, I did not realise the whole process for creating and controlling the Cobol standard was so convoluted. I have suffered many frustrations in attempting to obtain the implementation of relatively minor changes to the STOP RUN verb. Codasyl, the committee that vets and ratifies actual syntax changes, has altered the format of my change several times since it was first submitted to them.

I now realise that it may be as long as 10 years' time before this attention appears in a Cobol standard. I appreciate that my own proposal has run into difficulty because it is simple in its own right, but has a potentially significant effect on other language features.

I now think that, in general, the processing of Cobol language modifications is grinding to a halt

by actual involvement in committees and other meetings, but by merely exerting pressure for the formation of a specialist group, such as a computer standards board.

The achievement of a satisfactory Cobol language standard would be its primary objective, but it would be a forum for widening the standard setting process. Several groups exist at the moment that influence standards in the computing industry, such as European Computer Manufacturers' Association and the International Standards Organisation.

What I seek is a group that recognises and represents the needs of the computer application system developers. The aims of this group would be more easily identified with those of the NCC, whose current Cobol Standards Group could form the basis of the new standards board.

It must not be dominated by any particular group but represent the

turers and suppliers of software from imposing their own ideas on Cobol language development.

Many good new features that are being introduced into the Cobol language, such as screen management, validate and update and analyse, were developed in UK working groups, and the American-based committees are eager to encourage European-based users, especially those from the UK, to participate in the relevant standards processing groups (not just Cobol).

Perhaps, more importantly, we can express through a strong standards board the widely held view that the whole process can be greatly improved. Opinion in the UK is availing very much in favour of introducing a modular technique for releasing new standard Cobol features.

In this way, we could see the above new features appearing as new standard modules as early as 1984, instead of expecting to wait until at least 1990.

We must be prepared to take an active role. True, the various standards committees have always assured that everyone's voice is heard, but the time has come to put an end to the continual procrastination that has held up the new Cobol standard for at least five years.

If the speed of releasing new Cobol standards is not accelerated dramatically, our end-users are going to force us to reconsider our current systems development procedures by insisting that we install application programming tools that by-pass good, well-established programming practices.

The end-users see these tools providing them with working applications in amazingly short time scales. Use of these application tools is very much in the manufacturers' interests as they generally create greater hardware and software sales to support the well-overhead which can be incurred due to the nature of their file management routines.

There are well-documented cases of end-users developing the majority of their own online applications leaving the tedium of traditional batch systems in the data processing department.

The data processing department has to be able to take advantage of a properly established, standardised Cobol language, and the portability that follows from it.

End-user-orientated application development tools are waiting to fill the gaps left by poor quality systems running on inappropriate microcomputer systems. If our data processing departments continue to ignore the



Douglas Atkins is technical and research manager in the computer section of Leicestershire County Council.

problem, we have only ourselves to blame.

With complex terminal networks having the capability of giving most end-users instant access to the wealth of data we have spent years accumulating, we cannot delay application demands with excuses about insufficient trained staff and lack of programming standards. The end-user just does not want to know!

If we exaggerate the difficulties of program portability and hardware incompatibility to them they are going to question the need for trained, professional data processing departments.

**The data processing department has to be able to take advantage of a properly established, standardised Cobol language**

I am not advocating any form of reactionary protectionism as my own site is evaluating one of the advanced application development aids. I am convinced that the great deal of manpower, time and money others have invested in developing effective systems using Cobol is not lightly discarded.

I also want to continue being involved in running a harmonious, centrally co-ordinated service to a large and diverse user community that is able to consider each problem on its own merits and provide the solution.

I am arguing for a reconsideration of existing attitudes so that we can begin sorting out the particular problems associated with developing our major programming tool, the Cobol language, and thereby create the proper mechanism for computer installations' involvement in the processing of their programming standards.

Douglas Atkins

## ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, February 9, 1984

### Government looks to the short term

"LOOK to the long term" is a good bit of advice which is seldom heeded. The problem of trading short term gain against long term stability is a dilemma which faces senior managers in many companies. Investors and shareholders are often impatient. Managers are encouraged to postpone difficult decisions. They are not unhappy to acquiesce in the knowledge that someone else is likely to be at the helm by the time the effects of their decisions are apparent.

One of the hallmarks of the present government is that it is going for the long term. Early in the Prime Minister's first term she stated that it would take another five years of office if her policies were to succeed. The times are hard now, she would say, but only by making these tough decisions can Britain's future be ensured.

So it is all the more surprising that the government has apparently chosen the short term solution in trying to bring down the numbers on the unemployment register.

Last year a proposal was put before the Manpower Services Commission to spend some £300 million on training unemployed youngsters for jobs in information technology. The money would have come from funds allocated to the Youth Training Scheme. The National Computing Centre, which formulated the scheme, estimates that over 350,000 young people could have found jobs in data processing. The Cabinet, we understand, approved the scheme.

In the autumn of last year, however, the plan was scrapped. The £300 million earmarked for the scheme could potentially create many more "jobs" for people with lower level skills. That is, £300 million expended on low level training takes a lot more people off the unemployment register than £300 million spent on high level training.

High level training costs more and takes more time, and therefore you can train fewer people with the same money.

One of the criticisms of YTS was that it was merely a cosmetic exercise to take young people off the unemployment register and put them on training schemes which offered no long term prospect of a job. The NCC scheme promised to avoid that trap, but its success was not guaranteed to be quite so instant.

A White Paper published last week says that the MSC is expected to give "priority to newly emerging skills, such as electronics and robotics". That is a noble aim. There must be some doubt, however, about the government's real commitment to such priorities in the light of its track record on training.

Industry has its part to play in training, and its own track record is not outstanding. During the recession most companies were content to let their training programmes fall into disuse, even though they were aware that the first glimmer of better times would expose severe shortages of skilled data processing staff.

They are justified, however, in looking for a lead from government - for evidence of a well thought out and constant strategy.

One senior industry spokesman, who has regular dealings with the civil servants responsible for information technology, said after a recent rash of job changes in the Civil Service: "It's just the old shuffling of the pack: they don't like bureaucrats getting too familiar with industry people".

Hugh Sharpe, who headed the computer training division of MSC, was moved after only one year in office. George Tolley, who set up Open Tech, an Open University type of scheme for technical skills, was replaced before he had been in the job for a year. And recently the old shuffle took place at the Trade and Industry Department: Alistair McDonald, head of the Information Technology Division, off to become head of telecommunications; Jonathan Solomon goes from telecommunications to education; Jack Leeming goes from there to the Space, Post Office, and Film Division.

And so it goes. Such changes do not make for long term commitments or constancy.

When the government completes its current term of office - banana skins permitting - it will have been in office for nearly 10 years.

That could be just long enough for the effects of short term solutions to come home to roost.

**1984 and all that . . .**

THIS week's example of the strange things people say about computers was sent in by Keith Appleyard of Coventry, who wins £5.

British Telecom is investing £250 million in the exchanges which electronically can: speech 64,000 times a second and improves its quality.

Country Evening Telegraph

## LETTERS

### Micronet adventures

READERS may be interested to hear of my experiences as a "Micronetter 800". Last November I ordered a Micronet Prestel interface for my Apple II which I was advised would be delivered within 28 days.

After six weeks' delay I received a letter stating that there had been a delay on the Prism 2000 modem I had ordered and that I should receive the kit within the next 14 days. The interface duly arrived on December 14, with no documentation relating to the modem.

I sat down with due trepidation for my first link-up with Prestel. After making 15 phone calls and "timing-out" each time, I deduced with my in-built intuition for solving hardware problems that there was something wrong! This was confirmed by Micronet who advised me that the modem I had ordered was incompatible with the Apple, even though there was nothing stated on the order-form.

I duly returned the modem and a new interface was sent last week after several phone calls to Micronet to find out what was going on. Again I sat down to marvel at the wonders of colourful Prestel pages and, horror of horrors, it was in black and white despite my having purchased a colour card and getting a special cable made up (outlay £140).

I then decided to adventure further and try the remote-link facility which allows users to link up directly using the Micronet modem. On phoning Micronet "technical support" department I was informed that as their Apple had been down for several weeks, they had been unable to test out this facility, and I was advised to Mailbox Y2 who developed the Micronet interface for the Apple.

The trouble with Mailbox is that it is like an answering machine. If Y2 decides not to reply I'm stuck up the creek without a paddle.

However, the link-up with Prestel works very well and I'm enjoying using the Micronet service despite the 90-minute phone calls.

NELI OODNICK  
Simcon Computer Systems  
Kenton, Middlesex.

### Tandem achievement

WHY so few Tandem users (just six, I understand) responded to your user satisfaction survey (*Computer Weekly*, January 26), I do not know. We have 60 customers in the UK, with a total of 428 processors in key commercial and public sectors.

An indication of the satisfaction of these users comes from the high proportion of multiple installation orders we do with them. And from the US, the respected Cowen/Denham survey of computer users has ranked Tandem the best in the industry for customer satisfaction and loyalty for each of the past four years.

PETER HERMON  
Managing Director  
Tandem Computers  
Northolt, Middlesex.

### Prime grows

I HAVE to express my amazement at a front page headline, "DEC shows recovery but Prime falls" (*Computer Weekly*, January 26).

DEC's results did recover from the previous quarter, although they are still 18% down from 1982, as you stated. The analysis of Prime's results also shows quarter-to-quarter increases; revenues grew 9%, and net income a respectable 32%.

Your report correctly stated that Prime's 1983 net income was 28% below that of 1982, but failed to mention that Prime's net income was still 6.4% of revenue, whereas DEC's "recovery" figure is 5.7%.

ROBIN T. SHELTON  
Director Finance & Administration  
Prime Computer (UK)  
Hemel Hempstead, Herts.

### Terminal nonsense

YOU reported (*Computer Weekly*, January 19) that a working party set up by the Computer Board for Universities and Research Councils says that "at least one student in five should have a workstation by 1990." Also, "... the initial price for the complete workstation should be £1,000-£2,000."

Apparently this will "supply industry with computer literate graduates..."

Is there really a belief that in

1990 the average university student will spend two hours each day hunched over a computer terminal, and an intelligent terminal at that?

It really is time we tried to stop this proliferating nonsense. I don't mind cluttering our colleges with terminals at (say) £20 each, but the £1,000 plus price tag is ridiculous, and should have been seen as such.

IVOR CATT  
St Albans.

### Way to cut job costs

AS a contract programmer I am fairly often obliged to turn down prospective contracts because of excessive travelling time, inability to meet starting dates and so on.

Today, however, I was gratified to find a much better reason for declining an offer - the client was proposing not to pay me. The deal apparently involved a two-week probationary period - not in itself unusual - the successful completion of which would lead to a nice six-month contract. Failure to meet the required standards, however, would lead not only to

the order of the boot, but also to a marked absence of pay-cheques for the two weeks in question.

After being reliably advised on the illegality of this procedure under common law, I was able to inform the contract agency concerned that I would not be pursuing the post. I must admit my admiration, however, for what could be a novel method for companies to reduce their development costs.

FRED DOHERTY-BULLOCK  
European product marketing manager

### A code for everyone

THE postal sort code is non-computational, non-validated and, when translated into national grid co-ordinates provided by the Post Office, inaccurate.

How much better it would be to have an arbitrary 10-metre point in the polygon expressed in octal grid co-ordinates with building elevations expressed too - in the format XXXX-YYYY-ZZ.

It would be computational, graphically plottable and not in need of conversion.

The inconvenience to the Post Office? Software changes in the code.

For all the money spent trying to promote the Post Office's internal code, any future allocations could be spent on reasoned arguments for using a code which is of use to everyone.

J. D. THOMSON  
Penarth, Wales.

### Problems solved

THE article "Life Grows Hectic for the Exchange Makers" (*Management Review*, January 19) refers that the Mtel SX-2000 software problems will not be fully resolved until next summer.

Anthony Kanyon probably wrote the article several weeks ago, but you should be aware that the SX-2000 has received BT approval, and that deliveries, installation and operation are now taking place.

We would like it to be fully appreciated that the SX-2000 has justified all our hopes and, more to the point, customer expectations.

A. J. PUFFETT  
Mtel  
Newport, Gwent.

News of BT approval was carried in the January 5 issue - Editor.

## DOWNTIME

### The rural defector

BT is anxious to assure its customers that it will continue to provide call boxes at villages after privatisation and has started a vigorous advertising campaign to allay the fears of rural users.

One TV ad shows a phone box surrounded by sheep with a beaming farmer inside the box making a call.

The sheep are real (the farmer is real); but the box is a fake put up just for the ad. The real joke is that the very same farmer has been campaigning for years to get a real box installed on the very same spot.

BT has stubbornly refused to oblige on the grounds that it would be uneconomic and is in fact removing kiosks from the area.

But what was the lone-time farmer doing helping the enemy in the first place?

Appropriate

FOR those of you who take pleasure from life's little ironies, here is a tale to bring a smile to your lips: If you call your mind back to the promised arrival of IBM's 3380 disc storage system, you will remember that it was subsequently beset by postponement, production delays and promises to deliver that never materialised.

Now the system is now with it, IBM's US press officer for disc systems, his name? Mr. De Lay.

### IBM shares Popcorn

IBM is not fabled for rushing new products on to the market if it can help it.

Dragging things out for a couple of years not only helps Big Blue iron out the bugs, but keeps a vast army of IBM pundits in a very lucrative job as they try to out-speculate each other in the twist and turn of the new product will do.

But it looks as if the PC's big brother, Popcorn, is due for a premature birth in the early spring.

And IBM has quietly adopted Unix for its own machines.

A bit like Soviet supreme Yuri Andropov getting the Republican nomination.

### 10 YEARS AGO

FROM COMPUTER WEEKLY OF FEBRUARY 7, 1974: The first UK order for the IBM 3690 finance communication system was placed by Lloyds Bank as part of a £1.5 million plan to update its online branch network . . . A new association for users of CMC key-to-disc equipment, Cunic, was established.

### PUZZLER

A FRIEND of mine has two ordinary six-sided dice which are specially marked, so as to give every number from one to 12 an equal chance of coming up when the two cubes are thrown simultaneously.

This equitable arrangement is in contrast to the conventional 1-2-3-4-5-6 layout, which favours a combined seven-count in particular, and of course eliminates all possibility of a one-count.

Can you work out the special markings (which must obviously involve at least one blank face), before turning to page 79 for the solution.

part of a £1.5 million plan to update its online branch network . . . A new association for users of CMC key-to-disc equipment, Cunic, was established.

4-5-6 layout, which favours a combined seven-count in particular, and of course eliminates all possibility of a one-count. Can you work out the special markings (which must obviously involve at least one blank face), before turning to page 79 for the solution.



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Figure 2: data transmission from computer to terminal using a po





Using a bunch of modems to transmit data just a few miles?

Is the cost of high-speed modems driving you bananas?

One US company has decided to preach its solution in graphical terms.

## Microdata 1000

All systems go in a desk top workstation

The new M1000 workstation is a sophisticated desk top system for comprehensive business facilities and graphics. Communications protocols allow integration into any other Microdata network — and IBM.

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## LANs are beginning to bear rich fruit

Linking terminals and micros cheap is the new trend, says Steven Soss

THE latest developments in local area network products show a new trend towards linking terminals and micros cheaply into large communication areas.

The use of gateway nodes to link separate clearway networks via telephone lines is one example.

Clearway is the network produced by Real Time Developments. Two gateway nodes join two Clearway rings, allowing communication between them at 9,600 bits per second. The nodes cost about £300 each.

In terms of market size and range of vendor support, Ethernet is probably the most significant example of a local area network. The Ethernet specification was originally developed by DEC, Intel and Xerox in 1979.

The fast data rate (10 million bits per second) of Ethernet soon became the model for networks from other manufacturers. But the level of interest shown by many users in the new type of local networks indicates that they, at least, can see a need for something different.

Consider the Network Systems Corporation of America, for example. NSC has developed a bus contention system that differs quite subtly from Ethernet. There are two systems available using the technique: Hyperchannel, which is intended for linking mainframes, minis and their peripherals; and Hyperbus, which is a low speed version, intended for terminals and small systems.

Hyperbus is new to Europe, although it has been installed on selected US sites for at least 18 months and will soon support X.25, the packet switching protocol increasingly used in telephone links. Phone links were actually outside the original brief for networks, which were, after all, meant to be local.

Essentially, a local area network (LAN) was cheap. As the cost of peripherals decreased and companies cut prices even further, terminals and workstations proliferated at a great rate. This created the demand for low cost, convenient ways of interconnecting them locally.

Today, some manufacturers are promoting network technologies designed specifically for their own distributed processing and office automation systems. Wang and Prime spring to mind. But there are other companies trying to establish new local network concepts.

These new techniques are usually promoted on the basis of their data carrying capacity, their ability to combine data, voice and video, and their potential for multi-vendor compatibility.

When all the cabling is laid down, the software worked out and the transceivers or network interface units are added, these networks can be expensive. A cheaper solution was found using the telephone network. At the centre of every telephone network is an exchange, which is capable of functions very different from those of a usual kind of network.

Each telephone exchange is connected by an exchange line to the other exchanges, and through them to

other users on the site, and elsewhere using the public works and X.25 protocols.

The ordinary twisted pair used to connect telephones provides the 64K bits per second necessary for a standard digital voice channel. And the same can generally be used at 1.256K bits per second over distances of several thousand feet. Higher speeds are possible; distance decreases with faster speed.

The private automatic exchange (PABX) was designed with speech in mind, but its communications path between subscribers can be used for data well.

For example, if a 1,000 combined voice and data lines were to be used for data connections only, there would

As the cost of peripherals decreased and companies cut prices, terminals and workstations proliferated

500 connections times 56K bits per second (line speed), times two duplexes; 56 million bits per second of data capacity. This is only a rough, though, as a large number of slow circuits and not as a combined high performance pipe.

With the introduction of computer techniques and solid state switching, the PABX can be used to provide the kind of facilities required in a computer network.

A significant example of a communications-oriented network is the Micromax from Micromax. It uses telephone cable already installed in a building, or even, in this way, Micromax hopes to solve the kind of interfacing problem that exist with some of the most traditional networks.

In addition, says Micromax, networks are rarely self-contained, and this explains why such products support X.25. Many manufacturers, traditionally associated with data communication methods, have similar products. LDR Systems and Microdata, for example, both have network products that support X.25.

This approach to local networking — as an add-on for existing facilities and exploiting unused bandwidth — has several advantages. It is lower in cost and can be implemented piece by piece.

Also, implementing these kind of network does not force you to gamble on one concept or another in the hope that it eventually becomes an industry standard. The technology is evolutionary, not revolutionary, says Micromax.

Other than the telephone system, the cable TV provider has the capability to provide low cost bidirectional bandwidth anywhere in a city. The CATV system can carry both public and private data and can bring a cable to almost any site.

Steven Soss is a senior editor of Systems International.

## REPORT FROM AMERICA

Rocketing costs of innovation have resulted in a growth of limited high tech partnerships, says Bohdan Szuprowicz

# Why research is being forced to go into limited partnership

RESEARCH and development is the lifeblood of high technology companies. Without it they wither and die within a few short years. Unless a high technology firm can spend an average 7% or more of its revenues on R&D it will have a hard time keeping up with the rapid pace of innovation.

To some high technology sectors such as integrated circuits the ratio is even higher. What's more, the amount of funding required to perform R&D on increasingly complex microchips, systems and software is escalating rapidly and only the largest corporations can afford to engage in sufficiently thorough R&D programs. Even IBM, which is estimated to have spent \$3 billion on R&D during 1983, is probably beginning to realise that it might be impossible to continue this level of expenditure indefinitely.

Since IBM spends more on high technology R&D than most major competitors combined, any show-down in its spending will mean a new untested market opportunity for its competitors.

On the other hand the cost of advanced R&D is becoming so high that few if any of the competitors could afford it even if they could peer through IBM's traditional secrecy to identify the opportunities.

Although relatively costly, a

limited partnership transfers financial risk to a general partner and does not affect the profitability of its parent.

Typically a high tech R&D limited partnership offers a tax shelter to wealthy individuals and institutional investors who are prepared to finance one or more specific projects over a number of years. Investors can offset up to 100% of their contribution against tax on other income and are later rewarded through royalties on new products which are taxed at the 20% capital gains rates, or through conversion into company shares at an effective price considerably lower than the going market rates.

Initial high technology R&D limited partnerships consisted of a general partner who performed specific R&D for a single company. Storage Technology was among the first. It raised \$95 million through two partnerships for development of mainframe and optical memory. Trilogy, the high technology super-venture, was initially financed through a \$60 million partnership, Trilogy Computer Development Partners, which was underwritten by Merrill Lynch, the largest investment broker in the world.

That was in 1981. Since then many smaller high technology R&D limited partnerships have appeared. Some of these continue to focus on specific R&D projects for a single corporation such as the \$20 million Emerson Research Partners developing a two-way automatic communications system for implementation of electric load management in power utilities.

Similarly, the \$3 million Philon Partners is involved in developing sophisticated computer language

Typically a high tech R&D limited partnership offers a tax shelter to wealthy individuals and institutional investors who are prepared to finance one or more specific projects over a number of years

compilers. However, the \$16 million Diversified Technology Partners, The Software Fund, and tiny \$2.5 million Indus Electronics Fund are more in the "blind pool" category trying to pool together all the funds from many limited partners before deciding what R&D projects to finance and for whom.

The largest high technology R&D "blind pool" to date is the

\$100 million Prutech Research and Development Partnership offered by Prudential-Bache Securities in November, 1983. Prutech does not identify specific R&D programmes in which its funds will be invested, but it will be guided in its activities by market research studies from Dataquest, the high technology markets forecaster, and by feasibility studies from Stan-

ford Research Institute, a respected high technology consultant.

The Behr Venture Partners Ltd — 1983 is a \$32 million limited partnership organised by Baileman Eichler Hill Richards, a brokerage firm owned by the \$8.8 billion Kemper insurance and financial services conglomerate. This partnership is providing almost 28% of its funds to Denelcor for development of the HEP II supercomputer; 25% to Autonix for artificial vision, robotic "me-gassemblies", artificial intelligence expert systems, and Computer Controlled Workspace (CCW); over 21% to Bedford Computer for image generator, digital scanner and graphics terminals; over 14% to IMTEKS/Information Displays

for electronic publishing hardware; and almost 12% to Digilog for a new data communications network management.

Hutton/PRC Technology Partners with \$25 million, is the smallest of the major high technology R&D limited partnerships offered to the general public in late 1983. In this case Plonco Research Corporation, a worldwide engineering and information services firm, teamed up with E. F. Hutton, a major securities firm.

So far there is little track record to evaluate the performance of high technology R&D partnerships but the rocketing costs of innovation and escalating competition in the financial community assure their future.

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Wall Street — High-tech firms need substantial investment for R&D.



# SECURITY

## When disaster strikes, how much data will you save?

Taking fire and security precautions seriously can sometimes save a business, writes Michael Wood

ONE Wednesday evening fire broke out in the warehouse of a North Wales company. Within half an hour the offices and factory were wiped out. Their computer system and half their business records had gone.

The insurance records do not show it as a "computer fire", because the building was the major loss.

Most of the company's systems and program documentation were inside peoples' heads. This company was like almost every other. No one realised just how much the business would be affected by losing its computer system and data, because the risks had not been assessed.

Secure means safe against attack or failure. Computer security implies protecting systems from the effects of all manner of accidental and deliberate threats.

Any system exists in a hostile world, surrounded by threats. The electric power supply may fail, especially in winter. The user may enter incorrect data, or purge the current master file. The software is bound to contain bugs, despite the most rigorous testing.

Rats may eat the underfloor cables, and destroy the communications network. This happened at a Bedfordshire establishment, so bait was put down beneath the floor to poison the rats. Unfortunately it caused further troubles. The poison dust got into the air conditioning system, and the operators complained about the smell and the possible health risks.

Physical security is usually the first consideration. Access control and fire precautions are the two vital defences. Access control is essential for all computer areas.

"Need to know - need to go" is the foundation for much security thinking. Access control means that only authorised people are allowed within the controlled areas. In some cases they may be allowed access only at permitted times. For example, cleaning staff might be allowed access only in early mornings.

Many firms employ automatic systems to control access. They issue a badge or token to authorised individuals. The token may be a plastic card which can double as a visible identity badge. The cards carry a unique identity code which can be read by the correct type of reader device.

Many different kinds of code exist using a variety of physical properties. Magnetic stripe cards are familiar as credit and cashpoint cards. The dimensions are internationally standardised, and suitable card readers are readily available as OBM equipment.

Other cards use magnetic beads or areas of ferrite embedded within the plastic. Another technique uses thin magnetic wires within the card - the "Wigand effect" where the wire is magnetised electrically at the surface. Wires can be magnetised in opposite senses so that a reader can discover the coding.

Some tokens use printed coding.

laminated inside the card that can be sensed using infra-red light, since the plastic is relatively transparent to this. Ultra-violet light is used to read another type of card.

Access control readers for cards are either slots, as on a typical cash point, or "swipe" readers where the card is dropped in a narrow trough and passed sideways past a reading head. Sometimes these give teething troubles for new users who do not drop their card squarely into the slot.

Some systems use radio signals to interrogate the tokens. One has small transmitters, like personal pagers, worn by authorised people. Sensors near controlled doors receive coded signals from the transmitter, and release or open the door for people with the



Rat can eat through underfloor cables, destroying the communications network.

right taken. The system is "no hands", so it is convenient for those carrying things.

Another variant uses passive tokens, usually plastic cards carrying tuned circuits. These are interrogated by radio transmitters. The tokens have to be passed within say 10cm of the reader, though the token can be left in a wallet.

Tokens and readers have to be supported by some control system. This can range from a simple unit controlling one door to a complex computerised system covering several sites and thousands of people.

The latest systems provide online monitoring and logging of activity, and are usually integrated with building alarm systems for fire and intruder detection. Based on typical small business computers,

Access control systems must be

they can be programmed to display specific instructions for the various events that might occur. This can be especially valuable for security staff.

The system can give advice about what to do, based on careful consideration by experts before the event. It is an obvious opportunity for knowledge based-systems, that has hitherto been exploited chiefly in the nuclear industries.

All access control systems are inconvenient in some way. Some-one has to manage the issue of permissions, and provide alternative means for handling people who forget their pass. Care is needed with visitors, and those who leave. The system must allow quick disabling of a lost or stolen token.

Access control systems must be

integrated with the fire alarm system. The fire service will want to assess the system before it issues a fire certificate for the premises.

Fire is usually the most serious risk faced by any organisation. The problem is that although we are aware of its dangers, we ignore them. Fire precautions are treated with contempt.

Computers have a low inherent fire risk, but most computers have to be operated in buildings by people. The incidence of fires in computer centres is probably much the same as the incidence in offices generally.

Most of us know of small fires near computer rooms, especially when these are in ordinary commercial buildings. About one in 10 small fires grows into a big one.

Any fire in or nearby a computer centre can cause serious losses. A big fire will probably destroy the building - but little ones cause problems too.

Fire and smoke both pose threats to people. Smoke can be lethal well before the fire looks dangerous. Modern buildings and furnishings contain a great deal of plastic, much of which will burn, producing toxic fumes and dense smoke. Electric cabling is insulated with PVC, which produces corrosive smoke.

Many computers have been written-off after exposure to smoke, even though they were apparently unaffected. The manufacturer usually refuses to maintain the machine, on the grounds that its future reliability might be affected.

Fire precautions are a legal requirement in many countries including the UK. Insurance companies also insist on minimum precautions before they will afford cover. BS6256: 1982 Fire Protection for Electronic Data Processing Installations gives expert guidance.

The insurers are concerned about fire losses because of their high potential cost. Over the years they have accumulated a great deal of experience. The Fire Offices' Committee issues Rules for the Protection of Computer Installations Against Fire which covers topics like construction and air conditioning systems, as well as design and construction.

An unseen hazard in many otherwise excellent installations is inadequate fire-stopping at cable entries. A modern building will have good solid walls from floor to true ceiling. Inevitably, there must be routes for communications cables from the computer to the outside world.

Rapid growth means supplementary holes. All such holes should be plugged so that fire and smoke cannot pass through the barrier.

Original fire-stopping is often discarded in error when additional cables are passed through the existing routes.

Air conditioning systems are the source of many fires that disable computer systems. A minor electrical fault in the typical installations can produce

smoke and contaminating fumes. These will be dispersed rapidly to all parts of the installation unless the fire detection system has detectors within the air conditioning units.

An air conditioning unit on the top floor of a converted mill disabled another installation. One evening the half-inch cold water feed to the air conditioner burst.



It is vital to have a data safe - magnetic media is far less tolerant than paper

The computer room was directly below, connected by vertical air ducts. By morning the computer was standing in six inches of water. The manufacturer refused to continue maintenance, and the £40,000 machine was written-off.

Every installation should have proper back-up storage for data and programs, as well as all the other essential supplies like inkjet stationery. Fire data safes are relatively expensive, but give good protection if used properly.

It is vital to have a data safe. Ordinary safes are designed to preserve paper in a hot fire, and are insulated to keep the inside temperature down for many hours. Paper will withstand about 130 degrees C, but magnetic media is far less tolerant. Floppies will stand only 52 degrees C, other magnetic about 60 degrees. A data safe has better insulation.

Fire data safes are usually too small. Buy the biggest you can afford for you will soon outgrow it, and big safes are proportionately cheaper than small ones.

A safe is often seen standing with its doors open during working hours. The theory is that the operators would shut it in the event of a fire. This is wrong. Minutes can be vital in a real emergency.

Many firms use off-site storage as well as data safes. Friendly mutual off-site back-up arrangements could often be arranged between firms on opposite sides of a town. All that is required is a small secure room at either end, and an element of mutual goodwill.

Michael Wood is senior control room.

### SECURITY

## How to cope with catastrophe

You've no time to experiment when disaster strikes - a standby plan is the answer. Ken Wong gives a rundown on things you should look at

OVER the last few years, many organisations have felt increasingly uneasy about their growing dependence on computer processing in the day-to-day business and administrative functions in the company. As a result the computer service manager or data centre manager has been charged with obtaining some form of disaster standby provision to cater for possible disruptions in data processing.

At the very least, certain critical systems such as payroll can be run at another installation for a short period. Some have gone as far as duplicating the entire computer facilities at a second site.

By and large, there are three types of standby facilities available for consideration:

■ **Hot standby:** Twin computers are used with full switching capability to share common peripherals and mass storage. If one computer is down, processing can continue by switching jobs over to the second computer. Unfortunately the computers tend to be located back-to-back from each other and housed in the same room, together with the communications control equipment to facilitate swift changeover.

If a disaster such as a fire strikes in that room, all the equipment could be affected by the fire and additional remote disaster standby would need to be considered.

■ **Warm standby:** A remote installation is available to take on the processing of systems from the disrupted installation. A minimum delay of 24 hours is normally expected in the changeover of installations. The standby processing capability is normally restricted, and would not handle the full processing requirements of any length of time.

To obtain standby processing from a number of back-up installations would necessitate the replication of files, job control and careful planning of staff transport and movements to ensure the processing load can be split and processed at different locations, probably all with slightly incompatible hardware, operating software and mass storage media.

Planning for standby processing of online systems poses another major headache for the computer services manager, especially if these systems serve a large number of remote users scattered in wide geographical locations.

Some service vendors offer the temporary replacement of full minicomputer installations within 24 hours with the equipment transported to a designated site.

■ **Cold standby:** An empty installation is available at a remote site to receive new replacement equipment for the destroyed site. The cold standby site provides temporary accommodation for the new computer installations for up to six months. Portable computer centres are also available to provide temporary accommodations for replacement equipment near the destroyed computer installation. Proximity to the destroyed site would minimise the delay and cost of re-routing existing communication cable links to the temporary location.

In BIS' experience, computer disasters are rare. Every year some 20 to 30 fires involving computers were reported in the UK among a total population of 50,000 to 60,000 installations. The chance of a company suffering from a com-

puter fire is roughly one in a thousand.

On the other hand standby provisions cost money, more so for hot and warm standby than others. While many computer service managers are constantly reminded by senior executives that reasonable steps should be taken to ensure that the company does not go under or suffer a major setback in business operation, at the same time they have experienced great difficulty in obtaining a realistic budget for standby provisions to cope with an extended computer disruption.

In practice, many installations have resorted to a gut feeling of what systems the operations man-

agement planning strategy review, preparation of action plans, and testing of standby facilities and action plans.

Without a proper appreciation of the extent of damage to business arising from an extended computer disruption and realising what is at stake, it is futile to plan and allocate appropriate resource for standby provisions to mitigate that loss.

An objective business impact review, conducted with senior computer users, would serve to establish the extent of their business dependence on data processing, and highlight the financial

and business implications to the company, arising from both short- and long-term interruption of computer service to various key areas of business and administrative functions.

Following are the highlights of some of the findings of business impact reviews conducted by BIS:

- £1 million of new business a week for a financial institution would be lost throughout the disruption period.
- Between £2-3m of business a week to a manufacturing company would be at risk. If the products being manufactured are seasonal, a

serious disruption in the peak season could cause permanent damage to the company's reputation in the market place.

■ Invoicing and stock control from a commodity company would run completely adrift, besides having to finance a cash flow delay of £21m a month, customer dissatisfaction would result in some profitable outlets being lost permanently to competitors.

■ Calculations of wages to hourly paid employees in a brewery would be held up, if disruption lasts for more than two weeks, unless agreement can be reached on alternative pay procedures, union with-

drawal of labour would be almost certain.

■ Monetary losses through operational inefficiency and lost business opportunities in a large multinational would come to £19m for the first week, rising to £50m a month, with a further £270m at risk; cash-flow delays of £40m would be incurred in the first week, rising to £170m for a month, with a further £270m at risk.

The review also identifies the operational requirements of various business systems.

Dr Ken Wong is manager, Security and Privacy Division, BIS Applied Systems.



Strikes can be disastrous.

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Reed Exhibitions has organised an impressive promotional programme for 'The Computer Trade Show '84' with direct mailings to selected visitors to the COMPEC series of exhibitions, and to the entire circulation of the sponsoring magazines. Editorial previews of the exhibition in the sponsoring journals will ensure that interest in the show is at its height in the crucial period just prior to 'The Computer Trade Show '84'.

With this kind of backing it is no wonder that an important number of computer companies, like Digital Equipment Company, Perkin Elmer, Rodex, Norsk Data, General Automation, Rediffusion, Geveke, Newbury Data and Multicomputer, have already booked stand and space at the show. So if you want to be sure of meeting thousands of business buyers with bulk purchase at the forefront of their minds you must reserve your stand space at 'The Computer Trade Show '84' by clipping the coupon below, or better still phone Gillan Johnson on 01-651 3125 NOW!

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# Make sure you're protected from weather, mice and men

Lightning, mice chomping through cables and burglars all threaten the computer. John Vann looks at insurance

BY the end of 1983 it is estimated the British public had spent in the region of £300 million on home computers. That is a staggering £195 million more than in 1982. Current estimates also indicate that over a million home computers have been sold in the UK.

As for mainframe computers, the estimated value of such computers sold in the UK in 1982 was £1.492 million. Moreover, the estimated number of computers valued at over £15,000 installed in the UK in 1982 was 53,746.

With about £140 million spent on microcomputers and peripherals over Christmas alone, it is hardly surprising that computers — alongside videos — are emerging as a popular target for burglars.

Vending machines have overflowed and computer operators have stood on disc packs

lars. That could mean costly losses for their owners, unless they are properly insured.

The trouble is that the home computer boom is still relatively new in the UK — as is the business computer's — and so people are not generally aware that special insurance cover is available.

As far as computer insurance claims are concerned, it is not only burglars who create a menace. It's a fact of life that risks lurk in all our activities — and computer operations prove no exception.

If a computer is out of action for more than a few hours, this could result in considerable upset for a business, probably cutting off vital sources of information, not to mention the cost of repair.

The user may point out that certain protection comes under a maintenance contract or a manufacturer's guarantee. That's good thinking, but it is unlikely that either of these will pay the cost of repair when the damage comes from external sources or causes, or

through negligence. It is also unlikely that a contract or guarantee will pay for lost profits or revenue, or an increase in working costs following an accident involving the computer.

It's common sense that any business — irrespective of size or type — that has invested in a computer of any shape, size or cost should protect that valuable asset with adequate insurance coverage.

On the face of things, if a computer or system is installed in a firm's premises, there might seem to be no reason why it should not be insured along with all the other contents of the business. Such a method of insuring computer equipment, however, is almost certainly the exception to the normal way of doing things.

There are, in fact, practical reasons why special arrangements are generally made for insuring computers. For instance, the insurance company covering a firm's normal business contents, such as equipment, fixtures, fittings and stock, might not be keen on computer insurance and therefore might not offer an attractive contract cover or premium-wise.

With the cover given under a computer insurance policy, there is no "first" or "second" wording. Each insurance company that transacts the insurance adopts its own policy wording, terms, conditions and premium.

Perhaps initially we ought to consider some insurance policies specifically tailored for smaller computers, ie micros and minis, as these are popular in businesses.

About a year ago a computer insurance package, underwritten at Lloyd's and called Compu-Risk, was launched by Wigham Poland, a firm of insurance brokers based in London. A vital part of the package provides for the cost of reconstituting computer records destroyed, together with any loss of profits resulting from the loss of the information.

In addition to basic cover of all risks of loss of, or damage to, hardware or media, several useful cover extensions are included,

These are reinstatement as new on all equipment up to five years old; automatic cover for additional equipment obtained; full cover on equipment during transit (also increased costs from any loss or damage); increased costs or loss of profit or revenue, whichever is most appropriate, resulting from any loss or damage or denial of access to computer equipment or records; and loss resulting from failure of British Telecom local lines or public power supply.

Under this package, if a Burroughs B80 computer valued at £20,000 is insured, the premium is likely to be around £200, whereas insuring an Apple IIe for £2,500 might mean a premium of about £25. These are only guides.

Another computer insurance scheme is available from Lloyd's insurance broker Stewart Wrightson, and from certain other brokers. The cover, which is conditional on the user's taking out a maintenance contract, is underwritten by Trident General Insurance Company, a leading office in the insurance of computers.

The scheme breaks into two sections, Microsure and Minisure. Microsure is designed for systems with capital cost of up to £5,000, while Minisure is for multi-user or single-user systems costing more than £5,000. As the nature and extent of the cover provided is identical, we will deal with Microsure only.

This is an all risks insurance contract under which hardware and software are covered for almost everything — from being struck by lightning to having a cup of coffee spill on them. One interesting aspect is the inclusion of cover should there be accidental or malicious erasure of data.

Looking at the cost of this scheme, the premiums are 2% or less of the capital cost of the equipment. If capital outlay were £2,000, the annual premium would be £40. For a capital cost of

£2,001 to £3,500 the premium is 1.5% and for £3,501 to £5,000 it is 1.2%.

General Accident in Perth deals in computer insurance in its own right. It has a subsidiary, Scottish Boiler, with its own policy. General Accident takes proposals from non-engineering insurance brokers, where the computer concerned is used for clerical, administrative, accounting and similar work only and where complete (or partial) package cover is required.

Scottish Boiler considers all proposals, regardless of source, where the computer is used for production process, including systems that may control a design function. It also takes proposals from engineering insurance brokers where the computer is used for clerical and similar work only.

As regards cover for a mainframe computer, it is wise to seek the guidance of a reputable insurance broker or other intermediary. Well to the forefront in this

particular sphere is Eagle Star, another large company, with an attractive computer insurance policy giving wide cover at reasonable cost, though each quotation is based on its own merits.

One point of special note in respect to Eagle Star's contract is that should a computer have to be written off after a claim under the policy, a replacement model is allowed up to the sum insured, irrespective of whether the new model is a better computer.

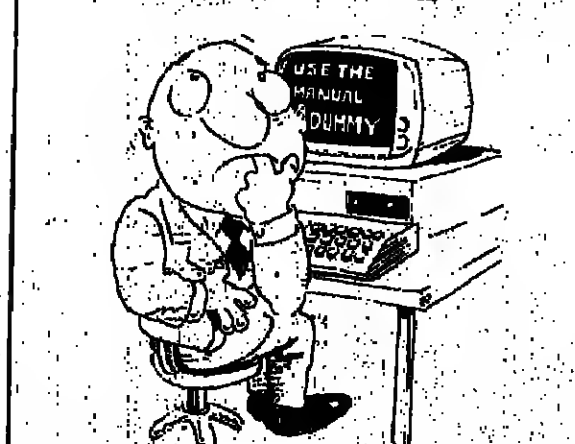
Another leading insurer, Commercial Union, also transacts computer insurance, and gives details of a few, recent incidents that have resulted in claims. Mice have nibbled through cables, vending machines have overflowed, drains have leaked, air conditioning plant has failed, and computer operators have stood on disc packs.

And an ICL 2972 was struck by lightning five times between March and July of this year. No one is safe, including you.

John Vann is a fellow of the Chartered Insurance Institute.



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## PEOPLE



Richard Palmer (above) has been appointed director-general of the Business Equipment Trade Association, in succession to Richard Harrington, who has retired after 16 years. Palmer joined Huntley & Palmer in 1947 as a management trainee. He subsequently held a number of prominent positions within the company and was elected to the main board in 1955. In 1973, he was appointed chairman and chief executive of Associated Biscuits International. He also became heavily involved in the trade associations relating to the food industry, including the Trade Committee of the EEC for the Sugar Using Industries, of which he was chairman.

Altek Microcomponents has named Eric Gregory as area manager, responsible for sales in the Northern Home Counties. He was a field sales engineer at Jermyn Distribution, and before that with the Radio Resistor Co.

Geoff Lee has left Lee-Dickens to form a new company, Lee-Integer, based in Corby, Northants. The company has been set up to design, manufacture and market industrial electronic instrumentation.



Dave Storey (left) has been appointed area systems engineering manager for Data General in the UK and Ireland. Previously Northern regional manager for DG, he joined the company in 1976 from Lucas. Dennis Papworth (right) has been appointed senior marketing specialist for CAD/CAM and industrial automation for the UK and Ireland. This is a new position at Data General, created as a result of the company's increased activity in factory automation. Papworth joins Data General from Adage, a stroke refresh graphics manufacturer based in Boston, where he was UK sales manager.

## DIARY

**FEBRUARY 10**  
Treasury Economic Model. Dr R. James, HM Treasury. BCS West Yorks. Hotel Metropole, Leeds. 6 for 6.30.

**FEBRUARY 13**  
Visit to Granada Computer Services. BCS Bedfordshire. Contact W. R. Chisnall, Amptill 403431, ext 57.

Developments in Office Automation. Speaker from PA Coostants. BCS Scottish WF and CA Group. Music Room, Staff Club, University of Strathclyde, John Street, Glasgow. 6.30.

Small Electric Motors. B. H. Wernick. IBB Farsday Room, Savoy Place, London WC2. 6.00.

**FEBRUARY 13-15**  
Machine Translation three-day conference. BCS Natural Language Translation Group. Contact Douglas Clark on (0234) 750111, ext 3135 or 3136.

**FEBRUARY 14**  
The Memex Information Engine. Prof. R. Heath, Heriot-Watt

University. BCS Dundee. Angus Hotel, Dundee. 7.15.  
Open evening. BCS Croydon. Maple Room, Fairfield Halls, Croydon. 7.15 for 7.30.

Not From Russia with Love. Lt-Col W. P. Bewley, Royal Military College of Science, Shrivenham. BCS Harlow. The Norfolk Room, Saxo Inn, Southern Way, Harlow. 7.30.

High Bandwidth Local Area Networks. Dr Roger Loader. BCS Reading. Small Physics Lecture Theatre. J. I. Thompson Building, Reading University. 8.00.

**FEBRUARY 15**  
Computers and Development - Tools or Traps. Njambi Mwari, Government of Kenya, and Graham Tople, ICL. BCS Developing Countries Group in co-operation with UKCGD and the British Council. Vera Anstey Room, London School of Economics, Houghton Street, London. 6.00.

Auditing Under the Commission. J. C. Nicholson and C. Hurford. Audit Commission. BCS Auditing by Computer Group.

Following a secondment to the Department of Trade and Industry, Mr Foot has now returned to Philips Electronics to take up a new appointment with the Philips (UK) Group. Foot, previously a divisional director with Philips Electronics, was seconded to the Department of Industry in March 1981 to assist in furthering the growth and more widespread use of British teletext and videotext. Since certain projects within these areas will continue during 1984, the Department has arranged with Philips to secure Foot's services on a part-time basis.



The appointment of Gerry Boundy as a consultant within the external products division has been announced by Powell Duffry Systems of Basingstoke. He joins PDS from Normalair-Garrett and has specific responsibilities for the application of the Protos-2000 manufacturing system developed by Powell Duffry Systems to run on Digital hardware.

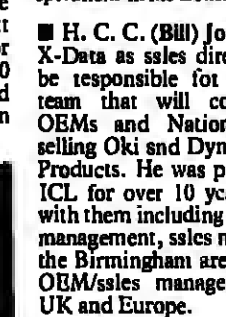
The Society of Telecom Executives has appointed a new general secretary, Peter W. Davies (above). His first professional appointment was as a research assistant with Apex. In 1977 he joined the Engineers' and Managers' Association (EMA). He succeeds Kenneth Glyn who retired earlier this year after serving the STE for 23 years.



Trevor Hunt has been appointed a financial controller of Datasolve. He has been chief accountant since joining the Sunbury-based firm in 1981. Ian Taylor, now managing director of the bureau operation of Datasolve, was previously head of a development division and subsequently manager of customer service development with ICL, which he joined in 1971.



David Turner (left) has been appointed sales director of ADR UK, having held the position of sales manager for the last three years. Nicholas Pollard (centre) is promoted to European marketing manager, a newly established position, reporting to the managing director of ADR Europe Ad de Graaf. Dich Borghart (right) already a director of the company, will take over as managing director of ADR UK. He is also responsible for ADR's operations in the Benelux and Sweden.



H. C. C. (Bill) Jones has joined X-Data as sales director. He will be responsible for setting up a team that will concentrate on OEMs and National Accounts, selling Oki and Dwyer Peripheral Products. He was previously with ICL for over 10 years, his career with them including major account management, sales management in the Birmingham area, and latterly OEM/sales management for the UK and Europe.

TDS Circuits has appointed Gerald W. Pearson as export sales manager. He was previously with Marconi Radar, Leicester, where he was responsible for the sales and marketing of flight, sea and land-based simulators, airfield electronics and general defence equipment.

Gary Kirkwood has joined Harris Systems as a terminal products sales executive. He joined Harris from Computer Applications, a DEC OEM systems house, where he was sales manager for the past two years. Previously, he was a sales executive with Rank Xerox.

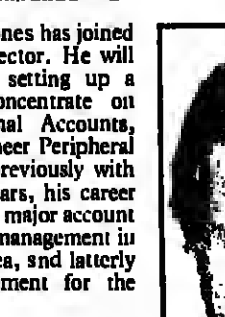
Edward Cunningham is now Northern regional systems engineering manager for Data General, responsible for controlling systems engineers based in the company's branch offices at Glasgow, Belfast, Dublin, Leeds, Birmingham and Manchester, where he will be based. Cunningham has been Data General's systems engineering branch manager for Scotland and Northern Ireland since 1980.



Richard Seaton (above) has joined Aston Technology as engineering manager. Previously he was responsible for initiating the hardware assembly and maintenance operation for Geest Computer Services, after leaving Ferranti.



Chris Leak has joined NEC Business Systems (Europe) as assistant general manager with responsibilities for marketing NEC's range of microcomputers in the UK and Europe. Before joining NEC, he worked for ICL as branch manager (small systems) for South-east England and for Philips where he was a national sales manager for office computer systems.



Holman Hunt, managing director of PA Computers and Telecommunications (Pactel) has retired. He began his career with PA Management Consultants in 1952, and helped the company move into the computer field in 1957. Hunt's successor is Cameron Low, previously director of Pactel's Software Division.

Steven Ollech has been appointed to the partnership of management consultant Annan Impey Morris, with particular responsibility for advising on computers and information technology.

National Advanced Systems announces the appointment of Barry Graham (above) as director of systems marketing for Europe. He joins NAS from IBM UK where he spent almost six years in senior marketing and sales positions. He was responsible for systems marketing of MVS and the 308X and his last position with the company was marketing manager for public utilities. Prior to IBM, Graham was with Sperry Univac for 13 years, rising to technical director responsible for systems support in the UK.



John E. Berndt (above) has been appointed vice-president, market planning, for AT&T International. He succeeds George R. Serpan, who becomes vice-president, business services, AT&T Information Systems, which was Berndt's most recent position.

PA, the international management and technology consulting group, has announced appointments to its international board of John Foden, since 1980 a member of the UK board of PA and head of PA Personnel Services; Peter Merigan, who became chief executive of PA in Australia in 1981; and John Jarvis (right), chief executive of PA Computers and Telecommunications (Pactel) Europe. Derek Maclear, who until the end of 1983 was PA's corporate development and marketing director, has become a non-executive member of the international board. He is replaced by Keppel Simpson, previously chief executive in North America.

Five seminars are to be held by Control Data Education Services Division during February at Coolool Data House, Shaftesbury Avenue, London WC2.

How to Design and Build DP Internal Controls is a two-day course set for February 14-16. It is designed for anyone concerned with DP controls and subjects covered range from introduction to internal controls, installation controls, application system controls, system development controls and controls over system maintenance. The cost is £355.

Designing Secure Applications, on February 20-21 aims to provide practical guidance on how to design and secure computer applications. Subjects covered range from controls in a DP environment, designing controls for the user, a strategy for control, fraud prevention and planning against disaster. The cost is £255.

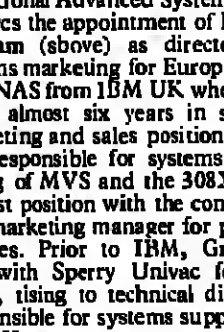
Computer Security, a two-day course set for February 22-23, will deal with the risks and security problems associated with computer processing. Subjects covered



Janet Day (above), founder member of the Institute of Word Processing, has joined Delta Data Systems as sales executive for the Northern Home Counties and the City. She has recently been co-opted to the Council of the Institute. Day started her career running a word processing bureau before moving to Olympia to sell business machines. She has joined Delta from Triumph-Adler.



Helping top and middle-managers to evaluate data more effectively and strengthen their planning and decision-making skills is the role of David O. Griffiths, newly appointed business consultancy manager for Slough-based Management Decision Systems. Most recently, as senior management scientist with Mars Group Services, Griffiths directed the design and implementation of a corporate strategic planning database for Mars Inc.



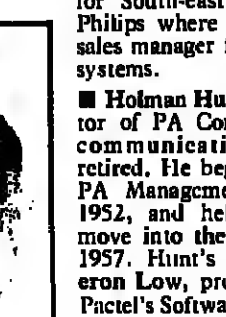
A specialist in structured methods and project management with a major Lloyds insurance broker, Mike Smith has joined the Span Group of companies as a senior consultant and lecturer. He spent five years with Stewart Wrightson and, as standards training officer, led a major project to introduce new training and project management methodologies throughout the Stewart Wrightson group.



Neville Reynier, 38, has joined the Mitsubishi Semiconductors team as sales manager for the UK and Eire. He was previously with Fairchild Camera and Instrument (UK) as manager for OEM.



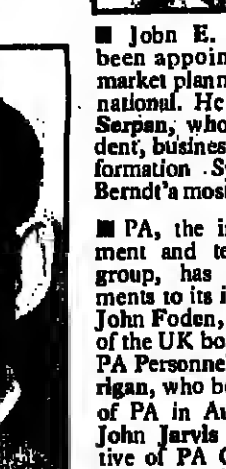
range from secure application design, to fraud-prevention and detection. Cost is £255.



Introduction to Microcomputers is a one-day course on February 27. Subjects covered range from hardware, software, word processing, spreadsheet calculator and database management systems. The cost is £155.

How to Choose a Microcomputer, on February 28-29, aims to give an introduction to the concept of microcomputing and subjects covered include the environment, the machine, the functional aspects of a microcomputer operating system, and using high level languages. The cost is £255.

As part of its 30 years celebrations the Institute of Science Technology is organising a four symposia congress. One of the symposia is designed to accommodate readers who might be interested in computer hardware software selection, the integration of financial, inventory control etc. Details from I. Gray, Dept. of Medicine, Hunts House, Guys Hospital, London SE1.



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## CONFERENCES

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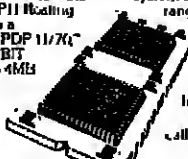
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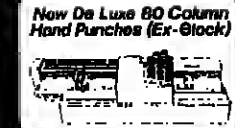
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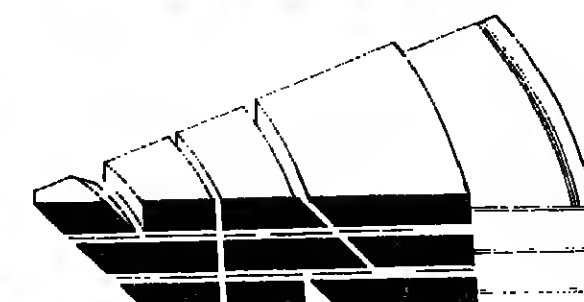
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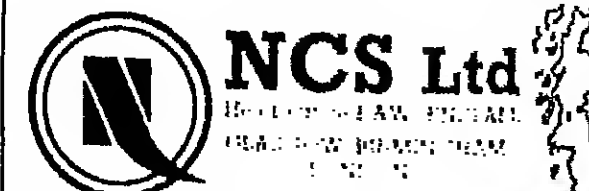
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We are now seeking to acquire marketing rights, on a royalty basis, to selected business, technical, engineering and professional microsoftware packages in preparation for a marketing launch commencing in October 1984, as part of a comprehensive range, and under our own label. If you have an applications package that you feel is well written and documented and which fills a need, typically one which hitherto has only effected on minicomputers or mainframes, please contact us. Preferred operating systems are MS-DOS, PC-DOS or UNIX.

An important part of our customer service is to offer technical support, and for the right packages we collaborate with our authors both in recruiting technical specialists for our HQ location and in redesigning the packaging and documentation for the US market. In Westminster Software colours.

Please reply in writing to:-

Charles Q. E. Jordan, President  
Westminster Software, Incorporated  
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Menlo Park  
California 94025

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The activities of Peterborough Software extend to many parts of the world and the organisation views the international market as one of considerable potential.

A commitment to extensive research and development and a keen awareness of market trends ensures the company maintains its highly successful profile.

At the heart of Peterborough Software's operation is the Customer Engineering Division which places a high priority on continuous customer support. Giving overall support, they are structured to provide the customer with the reassurance and security of a complete back-up service. To keep pace with the current expansion programme they now wish to recruit a number of key personnel.

## CUSTOMER SUPPORT

Candidates should be able to demonstrate good customer liaison skills. The position entails providing support to customers at the critical stages of system implementation and therefore an ability to ensure effective project control is essential.

## CUSTOMER SERVICES

It is the responsibility of the customer services department to provide a first point of contact for customers on any matter concerning their use of Peterborough Software products. Good communication skills are of major importance especially the ability to handle customer enquiries over the telephone.

## TECHNICAL SERVICES

The backbone of the Customer Engineering Division, Technical Services personnel provide a complete system maintenance service for all Peterborough Software products. This department also controls the final stages of product testing. The ability to pay close attention to details is essential.

## QUALIFICATIONS

Applicants should have a good academic record and be able to demonstrate a sound IBM based technical background and experience of IBM Assembler, CICS, IMS and VSAM would be particularly relevant. Experience of the payroll, personnel and pensions applications is important and candidates with a working knowledge of UNIPAY, UNIPERSONNEL or UNIPENSION would be particularly attractive.

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**INTERFACE**  
RECRUITMENT & SELECTION CONSULTANTS LTD

No.1 Central Street, Manchester M2 5WR  
Telephone: 061-833 0846

Our client is one of the leading manufacturers of powerful 16 and 32 bit computers, super-minis and DDP products in the U.K. today. The Company has invested massive resources into its U.K. based manufacturing facility and is committed to an exhaustive R & D programme. Currently employing over 1000 people nationwide, they achieved a turnover in excess of £45 Million in 1983 and are growing at over 10% per annum.

Their previous Branch Support Manager in Manchester has now taken advantage of career progression within the Company. This has therefore created an exciting and highly important opportunity for a candidate with broad based computer industry experience to enter the Company at management level and take control of the Branch Support function.

The responsibilities include the management, leadership, direction and motivation of a team of 5 support specialists as well as the need to be hyper-active in pre and post sales situations.

Applications are invited from career minded professionals who preferably, but not essentially, have previous supervisory or management experience. In addition to being technically competent you will also need to demonstrate expertise in pre and post sales support together with a high degree of knowledge of networking and commercial/manufacturing applications.

In addition to the above position, there is also a requirement within the Company for Systems Support Specialists in the above locations. If you have at least 4 years experience in D.P., the ability to deal with customers pre and post sales, programming and systems analysis skills and technical support or specific applications knowledge, the Company will want to talk to you.

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OEM accounts manager	£18K + comm.
Sales support manager	£16K + bonus
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Contact us for more details.

### Energy Control Sys.

**W. Country** £9K-£14K  
A major international company with diverse interests in many technical markets has a well established subsidiary which supplies computer controlled energy management systems worldwide. We would like to hear from programmers who have real-time experience preferably with assembler and a high level language. Usual equipment is PDP-11 with Intel 8085 and purpose built consoles etc. Variety and scope for the future.

### Operating Sys. Support

**Bucks.** to £16K + car  
Continuing success and expansion has created new requirements for experienced software specialists to work within our client's European regional support centre. We would particularly like to hear from candidates who are at home in the internals of operating system code. You will provide back-up support to field support personnel on occasions when problems are particularly obscure or sensitive.

### Ex-military Tech. Staff

**L'don/H. Counties** to £18K  
We have a number of clients who are interested in employing senior ex-military personnel who have a technical or scientific background. Candidates from a communication environment are particularly sought after. You could expect interest in positions as Senior Marketing or Sales Consultants or Project Management assignments depending on your inclination, qualifications and experience. These are permanent appointments.

### UNIX Client Support

**Berks.** to £13K + car  
Our client has established a high reputation for its development of CPU cards for the OEM market. Since its introduction they have concentrated attention on the Motorola 68000 and gained a growing market. More recently UNIX has been added to their product and they now seek a bright, presentable programmer to field customer enquiries. UNIX training will be provided.

### CAD/CAM Development

**South-West** £8K-£15K  
This is an outstanding opportunity to join a respected company in the CAD/CAM field with an impressive range of systems. All development work is in 'C' or Pascal on DEC VAX's running UNIX; however, our client is interested in applicants at all levels with one year or more experience of high-level scientific languages such as ALGOL, FORTRAN, CORAL, etc.

### Support Executive

**Herts.** c£12K + car  
Approximately 3 years commercial applications including communications, office automation and COBOL are the prime requirements for this specialist support role. You will work in close conjunction with the sales and marketing department and be responsible for the installation and post-sales support of Distributed Data Processing and Office Automation software, together with some pre-sales work.

### Electronics Engineers

**Wilt.** to £12,000  
Ideally we would like candidates to have a minimum of 3 years digital design experience using TTL/LSI. This is an excellent opportunity to join a rapidly expanding company who are making their mark in the high technology field of office automation. You will normally work in small teams and be based in the company's modern development centre. Reloc. assistance provided.

### Medical S/W Prog/Analyst.

**Herts.** c£12,000  
The medical systems group within a substantial and expanding organisation requires experienced software specialists to implement new applications. You will work closely with Sales and Marketing and be responsible for liaison with customers to agree specifications and systems acceptance. We prefer candidates to have used block-structured languages and to be able to think on their feet. Excellent prospects.

### Real-Time Programmers

**Herts.** £8K-£13K  
A leading manufacturer of analytical spectrometers is seeking programmers at various levels from junior programmers to systems analysts. The special systems which control the analytical process and which involve other real-time applications require the skills of people with a scientific or engineering background. A knowledge of DEC hardware would be an advantage though not essential. Applicants with a Physics degree are especially welcome.

### Num. Control Fortran Progs.

**Bucks.** £10K-£14K  
Since the introduction of CAD and CAM the rapid progress towards the fully automated factory has continued to gather pace. Integrating NC graphic systems with the data from CAD/CAM applications and simulating the machining process are yet more steps in this progress. Our client can offer experienced Fortran programmers a most rewarding and challenging career in their expanding development team.

### Fourth Generation S/W

**London** to £18,000  
This highly challenging and exciting area of software development tools for the future is with us now. Candidates should be experienced software developers but primarily have the interest and intellect to make a contribution in this area. Senior applicants will be expected to demonstrate awareness of the mechanisms of programming and design aids and related systems. Future prospects excellent.

### Micro Systems Engineers

**Herts.** to £16,000  
Our client deals in sophisticated real-time systems designed for both the U.K. and overseas markets. We are seeking experienced systems engineers with a background predominantly in software with hardware appreciation. Development is typically in PASCAL hosted on PDP-11 under RSX11-M with Intel and Motorola micros as target processors. We recognise that such skills are in great demand and offer high rewards accordingly.

### Assembler S/W Engineers

**Herts.** to £12,500  
Ideally your assembler experience should be MACRO-11 or IBM 370. You will join a team where you will be expected to participate in a range of activities which could include product validation, communication, i.e. technical input to support for PTT and other authorities, LAN interconnections, IBM specials or DEC PDP-11 software. Occasional U.S. and European travel. A golden opportunity to extend your career with a major company.

### Junior Programmers

**Herts/London** to £10,500  
A small, expanding company, which is a subsidiary of a large, successful international group, is seeking programmers to work on commercial applications: Tax, Securities, Accounting, Time Recording, W.P. and Ledger. A knowledge of BASIC gained on micro computers is required. Any D.G. mini experience would be useful. This is a timely opportunity to join a young and forward thinking company.

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**£18K base + comm + car**  
Based in the south but with responsibility for developing territory throughout the U.K., this is a position for an experienced person who can demonstrate the ability for the job. You will probably have 10 years in D.P. and experience handling major accounts. Our client's range of products in office automation and communications is well established and their name is one which is well known and respected.

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### Programmers

(not less than £8,000 + aged 25-32 who can offer at least two of the following:-

- \* A minimum of 2 years' COBOL experience.
- \* Experience of On-Line Transaction Programming.
- \* Experience of Database Programming.
- \* Knowledge of TDS and/or IDS II.
- \* Experience on Honeywell Mainframe Equipment.

### Senior Computer Operator - Shifts

(Salary negotiable) with a minimum of 2-3 years' experience preferably on Honeywell mainframes. You should be conversant with operational aspects of Computer Operating Systems, System Utilities and JCL to the extent of taking corrective action and carrying out restarts in the event of abnormal termination of processing and be capable of assisting the Operations Supervisor in the optimisation of file-space etc. Afternoon and evening work-hours to be negotiated.

To the successful applicants we offer five weeks' holiday, pension scheme with free Life Assurance and participation in our staff bonus scheme.

Interested candidates should write with full personal and career details to:  
Chris Watford, Personnel Manager, AMF Legg (A Division of AMF International Limited), Newbury Road, Andover, Hampshire SP10 6PW, or telephone (0264) 62189 Telex 2361 for an application form.

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## DATABASE OPPORTUNITIES for Software Engineers

For talented young Software Engineers, database is one of the most exciting career areas of today and one in which we can offer challenge, responsibility and a stimulating environment.

Marconi Avionics at Borehamwood has been quick to recognise the value of database systems and has recorded such spectacular success with a major engineering database project that the company is now committed to expanding its in-house database group.

### We immediately require: TEAM LEADERS PROGRAMMERS

A background in a database environment is desirable, but we are also keen to hear from people without database experience.

Attractive salaries are supported by comprehensive benefits, including on active sports and social club with extensive sports facilities close to the site. Prospects are excellent and management training will be provided for promising employees.

To obtain further details and an application form, please contact: Linda Magill, Marconi Avionics Limited, FREEPOST, Elstree Way, Borehamwood, Herts WD6 1BR. Telephone 01-953 2030 extension 3195. Please quote reference MA/84-002.

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## ...the next step

**UNIX** is undoubtedly emerging as one of the most versatile operating systems in the world for mainframe, mini and microcomputers. Our client is a reputable and professional systems and product company, with a turnover in excess of £40 million. As such they have established an enviable lead in the supply of **UNIX** based systems and related products.

**UNIX** is a trademark of Bell Laboratories.

for the logically minded software support consultant should be obvious. Moving into direct sales is a natural progression and some of our most successful sales executives took this step.

We seek a **DEALER SALES EXECUTIVE** experienced in software products or related operating systems. Our products are geared for use by the professional end user and therefore we require a sound software background, but not necessarily in **UNIX**.

We are not of course, precluding applications from those experienced **SALES EXECUTIVES** with this background.

This position is based in central London and requires a high degree of mobility. The company offers an excellent working environment, substantial remuneration with a no ceiling commission earnings plan, free BUPA, life assurance, voluntary pension and company car.

**£20-£24k** 6 months guaranteed, car, plus benefits, based in London.

For further information please ring Kathy Sinclair

Suite 201 House 324 Regent Street London W1R 5AA 01-637 9811

**MANAGEMENT & EXECUTIVE SELECTION**

## SENIOR APPOINTMENTS - £14K +

# Communications Specialist

For a vital consultancy role with one of the 'top 5' computer manufacturers

Package to £18,000 pa

Company Car

Our client is one of the world's leading computer manufacturers and acknowledged to be among the market leaders in the Communications field. They now wish to strengthen their sales support team by appointing a Communications Consultant to work in the South of England.

Your brief will be to provide pre-sales technical support for advanced communications products. This will entail analysing customer needs, preparing proposals, then performing demonstrations and presentations for existing and new customers.

The need is for someone with in-depth communications experience at the protocol and networking level. A detailed knowledge of IBM, Sperry Univac, Burroughs or other manufacturers protocols would be advantageous, as would

experience with several of the following:

★ OSI ★ X25 ★ SNA ★ LAN's ★ Public Data Networks ★ Office Automation.

You may currently be working for a major user, a consultancy, or another computer manufacturer. The key requirement is a combination of technical skills and the confidence to work in a pre-sales support role.

A remuneration package worth up to £18,000 pa will be offered. As you will need to travel to customer sites, a company car will, of course, be provided. Future prospects for career progression are first-class.

If you are interested, please telephone or write with a full c.v. to: J. Taylor, Moxon Dolphin & Kerby Ltd., 178-202 Great Portland Street, London W1N 5TB. Tel: 01-636 8638, quoting Ref: KL/4100.

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## A SENSE OF ACHIEVEMENT

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The highest standards of excellence, across a broad spectrum of applications, has earned Software Sciences an enviable reputation for providing successful systems. A professional approach combined with technical expertise, has enabled us to become one of the largest systems houses in the UK.

An increasing market for our services internationally has produced opportunities for accomplished Sales Executives to contribute to our progressive and substantial growth.

Applicants should have a proven track record of creating capital value sales from initiation, through bid preparation and negotiation to successful close.

Experience of one or more of the following is essential: Commercial Systems, Office Automation, Software Products, Civil & C, Military & C, Defence. A working knowledge of technical and operational requirements in these disciplines will probably have been gained with a manufacturer, systems house or systems engineering company.

In return we offer a high basic salary, initial bonuses, guarantee, company car and an excellent range of benefits. Assistance with relocation will be given where necessary.

To apply, please telephone our consultant Francesca Drinkwater or send a detailed C.V.

Location: Farnborough, Hampshire

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## DALROTH

### Focus your skills in Saudi Arabia

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Plus free accommodation, Medicare and flights

Our client has one of the world's largest and most sophisticated complex of linked Data Centres and Information Centres. They contain a number of large networked IBM 2030, 2050 and 4300 at the heart of a mainframe system. There are also a number of attached multiplexed subsystems to maintain the thrust of new developments. The client has urgent requirements for:

### FOCUS SPECIALISTS

Systems Analysts + Systems Engineers

For further information please contact:

1011 1011 1011



## THE MICRO TECHNOLOGY GROUP



The Micro Technology Group, founded in 1978, is now one of the most firmly established systems houses in the South East of England. Its product range includes both IBM and WANG business systems, which it sells to a broad portfolio of customers in the South East of England and to a number of major corporations throughout Europe. It also provides a wide range of hardware and software products, several of which have been developed in house, to an extensive dealer network.

The group is based in the Pantiles, the elegant eighteenth century heart of Tunbridge Wells. The area provides reasonably priced housing, an excellent shopping centre and good schools. It is well positioned for access by train to London and, by means of the new M25, to the national motorway network.

Micro Technology is now a multi-million pound company and will be expanding considerably over the next two years. As part of this expansion we require:

### SALES PROFESSIONALS IBM AND WANG PC £20K + CAR

If you are young, articulate, intelligent and hard working, with a proven record of success in the microcomputer or related industry, and you want to continue that success in the Garden of England, we need you to help us sell the IBM and WANG personal computers.

### SALES PROFESSIONALS DISTRIBUTION OF PERIPHERALS FOR IBM-PC £20K + CAR

As one of the leading suppliers of peripheral equipment for the IBM-PC, we need the services of a self-motivated sales professional, preferably with a good understanding of IBM commands, to sell these market leading products to IBM authorised dealers and national accounts.

If you feel you have something to offer for either of these requirements, please telephone Nigel Wood on (0892) 45433.



Please send applications, including current cv to:  
Micro Technology Limited  
51-53 The Pantiles  
Tunbridge Wells  
Kent TN25TE

### TECHNICAL MANAGER TO 18K + CAR

Reporting directly to the technical director, the person appointed will have had experience of managing a small team of people.

His department is responsible for:

- Installation and commissioning of hardware
- Field service
- New product design

He will also be responsible for:

- Handling third party maintenance contracts
- Supervising research and development projects
- Taking hardware developments into production
- Supervising related system software work

# Sales Consultants

Continuing expansion in London and the South East by one of Europe's foremost independent suppliers of DP training courses, State of the Art events and publications, creates immediate vacancies for high-calibre sales staff.

You will need to be able to demonstrate sales success within a profit motivated organisation as well as an in-depth technical understanding of the application of computers in a business environment, and be prepared to travel extensively in the UK, with occasional trips overseas.

Successful applicants will have an unparalleled opportunity to sell a range of products which presently include proven technical training courses, management skills coaching, bespoke corporate and career development training packages, and leading-edge conferences and tutorials.

These positions carry a remuneration package which will reward success as well as reflecting the level of seniority and responsibility within the organisation.

Write, giving full details of career to date to:  
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Pergamon Infotech Limited  
Berkshire House Maidenhead Berks SL6 1NF  
Telephone (0628) 39101

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## SENIOR APPOINTMENTS - £14K +

# FINANCIAL & RETAIL SYSTEMS SALES

## LONDON OR MANCHESTER EUROPE'S NO.1 D.P. COMPANY

"A TRULY ASTONISHING RECORD OF SUCCESS OVER THE LAST FIVE YEARS IN SELLING SYSTEMS TO SOME OF THE BIGGEST FINANCIAL & RETAIL INSTITUTIONS IN THE COUNTRY"

75 years of innovation have earned our client an outstanding reputation across the whole spectrum of Information and Data Processing, and they are now recognised as one of the world's leading suppliers. Turnover in the UK has now exceeded £80 million per annum, and includes several individual multi-million pound orders. Indeed, any large financial or retail organisation looking at automation would almost certainly ask our clients to quote.

Their determination to be the most important supplier of Branch Terminal Networks to the country's largest financial and retail organisations has created vacancies within their Major Accounts Division. Two categories of Sales Executive are sought:

### SENIOR ACCOUNT MANAGERS

#### BASIC £15K + OTE £30K + GUARANTEED £20K + & CAR

Applicants to these positions will immediately identify with the whole ethos of selling large distributed systems into financial and retail markets. Leaders in the field include BURROUGHS, NCR, OLIVETTI, NIXDORF, ERICSSON, PHILIPS and IBM, and it is probable the ideal candidate has worked for one or more of them. A successful sales track record at the highest level and over several years is mandatory.

To you, our clients offer the opportunity to join arguably the most important supplier in these market areas and to earn extremely well while progressing on an excellent career path.

Contact BOB BOWER who is advising on these superb positions.  
Reference: CW0902/1

**HUTTON EXECUTIVE SELECTION LTD.**  
31 PALACE STREET,  
LONDON SW1E 5HW.

TELEPHONE: 01-630 0434 (24 HOURS)

### TRAINEE ACCOUNT EXECUTIVES

#### BASIC £12K OTE c.£24K GUARANTEED £17K & CAR

Our clients are also very keen to "grow their own" Senior Account Managers.

They would be interested in talking to young executives with the right personal qualities, currently working for large Building Societies, Banks, Insurance Companies or Retail Groups. They would probably be employed within their company's Management Services or O&M areas, and have a very sound understanding of their particular businesses. Our clients offer you the opportunity to move into the highly lucrative area of computer sales and to receive comprehensive training second to none in the industry.

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SPECIALIST RECRUITMENT CONSULTANTS

## EXECUTIVE SEARCH

### SALES MANAGEMENT & EXECUTIVES

#### POSITIONS FROM £25K to £45K + HARDWARE, SOFTWARE & CONSULTANCY

The majority of the recruitment work carried out at Huttons falls into the "search" category. Broadly speaking, this involves us in specific retained recruitment assignments for a number of prestigious clients.

These positions are rarely advertised since, after a decade of recruitment experience in the industry, we are quickly able to identify the correct environment in which to search, and the right people with whom to talk.

We may well have already talked to you, but if not, we welcome an opportunity to discuss the many assignments on which we are currently working. If you are a successful sales professional, whether responsible for a territory or a Senior Sales Manager, please telephone either BOB BOWER or MARK IRENS for a brief and informal discussion. You may be surprised at the vast job potential currently available.

Ref. CW0902/2

### CONSULT THE PROFESSIONALS IN SEARCH

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## HONG KONG

### SALES EXECUTIVE

#### SUBSTANTIAL EARNINGS PACKAGE ACCOMMODATION, CAR, ETC.

Due to continued expansion in the Far East, the world's leading supplier of packaged application software needs a Sales Executive for its Hong Kong office. The appointee will be required to call on top executives of prospective client companies in Hong Kong and the Philippines, as well as manage existing clients in both areas.

The main requirement is a successful sales track record in the bureau or software environment, particularly with regard to financial/accounting packages.

A mature person is preferred, aged 30+, with the self motivation and

organisational skills necessary for working in a small remote office.

The ideal candidate will be married without school age children, although these preferences are not essential.

This is without doubt an exceptional opportunity, providing professional challenge, good career prospects and a very substantial earnings package, supplemented by accommodation, medical care, car and annual leave with passage to the U.K.

Please contact MARK IRENS quoting reference CW0902/3

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LONDON SW1E 5HW.

TELEPHONE: 01-630 0434 (24 HOURS)

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## SENIOR APPOINTMENTS - £14K +

# SALES MANAGER

to launch new company.

**c£35,000 p.a. + car Berkshire**  
**and SENIOR SALES EXECUTIVE**  
**c£25,000 p.a. + car**

To assume total responsibility for the sales drive of this new company, you should be IBM trained with an in-depth knowledge of its plug compatible market.

With an agreement to sell reliable Japanese high-speed bond printers, the company is poised for a publicity launch in the Spring. This venture will represent a new specialisation within a group already turning over in excess of £9 million per annum. Rapid growth has resulted from successful penetration into markets as diverse as electro optics and microcomputers.

Reporting directly to the Group Chairman, you will have complete autonomy over the sales function. The holding company is geared to maximise the efficiency and profitability of its subsidiaries. Consequently, each company is judged by its margins rather than the size of its turnover. All services are controlled and maintained/support one of the highest calibre.

In addition to this Sales Manager, we also wish to identify a young sales executive for whom self-motivation and commercial acumen are second nature. The growth potential for both positions is tremendous. In the case of the senior post it could be exceptional - the Managing Director has yet to be appointed.

For further information on either position telephone Marc Zundel on 01 236 7222 (or 01 602 0685 evenings/weekends), or write to him with full career details at:



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### OEM SALES MANAGER

£15,300 package + car

With responsibility for selling range of impact and non-impact printers. The candidate should have a minimum of five years' background in the computer and/or peripheral industry. Selling experience essential. In addition to the salary, a bonus to experience, this position enjoys a range of excellent fringe benefits. Please contact Mrs Shenna Bleach on Woking 71991 for application form.

**DIABLO SYSTEMS LTD.**  
Regent House  
20 The Broadway, Woking, Surrey

## its SALES

International Telecommunications Services was formed in 1972 as a telecommunications systems company. ITS provides system plus software design, equipment supply, installation and maintenance, and the provision of a spare service available from a network of service centres throughout the world.

Due to the expansion of the company and its markets ITS now requires two domestic sales engineers. Both sales engineers must have experience of data communications/telecommunications with proven sales records, maturity and business acumen.

Ref No MC001/84: Applicants for this post must possess a thorough knowledge of the airline industry.

Ref No MC002/84: Applicants for this post must have an IBM background and a knowledge of the market.

Attractive salaries, with commission, are offered for both posts and other benefits include a company car and contributory pension plus life assurance scheme. Applicants, in the first instance, should write, enclosing a cv, to:

Parvati Boyle  
ITS  
Clocktower Road  
Clayworth  
Middlesex TW7 6DT

## Systems Commissioner

**c.£26,000 p.a. tax-free**  
**in one of Saudi Arabia's**  
**finest hospitals**

The National Guard King Khalid Hospital in Jeddah is managed by the British-based International Hospitals Group (IHG) in liaison with the British government; the venture is supported by IAL.

It is a hospital which combines the highest medical standards of health care with the latest in medical technology. It has comprehensive Administration, Patient Management, Patient Care and Laboratory Services systems based on multiple linked 11/70s operating under RSTS/E and using DECNET.

As Systems Commissioner, you will be responsible to the Computer Services Manager for the acceptance of systems, their testing, the planning of clerical procedures and for identifying required equipment. With a systems staff under your supervision, you will ensure that the highest standards are maintained in the use of systems and procedures.

With a degree or membership of an appropriate professional institute such as Associate membership of the British Computer Society or the Institute of Data Processing Management, you should have at least five years in systems planning, installation and on-line computer systems. This should include 3 years experience in the management of hospital EDP systems.

### WHAT YOU WOULD EARN WITH IAL

The figure quoted is based on a salary of c. £24,000 p.a. (SR120,000) at a conversion rate of SR5.0 = £1, plus a bonus of one month's salary for every 12 months satisfactory service, which is paid as a tax-free lump sum at the end of your time with IAL in Saudi Arabia.

Benefits include free accompanied status accommodation and education allowance, 49 days annual holiday with free return flights to the UK and free medical care. There are excellent on site facilities which include shops, gymnasium, theatre, swimming pool, tennis courts and restaurants.

Preference will be given to suitably qualified Saudi Arabian nationals and to other Arabic speaking personnel.

For further details send your cv. to Senior Recruitment Officer at IAL, Aonido House, Hayes Road, Southall, Middx UB2 5NJ. Tel: 01-574 5432 Please quote Ref. M018.



**MEDICAL SERVICES**  
**MANPOWER SERVICES**

## Data Centre Manager

ESSEX

**C. £17,000 + CAR + BENEFITS**

We are seeking a manager for a major IBM computer installation in Essex. Our client, the UK leader in its field, is highly successful and profitable, and offers a progressive and secure career. Data processing facilities are a vital part of the business process, and this is reflected by the current and planned levels of investment. The present configuration includes 3083 and 3032 CPUs, 3380 and 3350 disk, and 9700 laser printers, together with a network of distributed processors and over 450 terminals.

A highly experienced operations professional is required, with organisational and man management skills added to a good understanding of data processing and office automation. Applicants will need to demonstrate ability in:

- \* controlling the diverse activities within a busy data centre
- \* working with systems and technical management, as well as suppliers, on current issues and forward plans
- \* liaising with user representatives on service levels and requirements
- \* representing the operations function convincingly to managers at all levels inside and outside the DP organisation

Our client's modern offices are located in a low cost housing area with excellent road and rail links to London. Facilities include a free restaurant, free life assurance, an excellent pension scheme and an active sports and social club. If appropriate, relocation assistance will be offered to the successful candidate.

Applications in strict confidence under reference DCM 15360/C, will be forwarded unopened to our Client, unless you list companies to which they should not be sent in a covering letter marked for the attention of the Security Manager.

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**Recruitment Advertising Limited**

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# WE'VE GOT WHAT YOU'RE LOOKING FOR!

## PROGRAMMERS, ANALYSTS AND SENIOR PROGRAMMERS NORTH

This installation offers excellent career opportunities to well educated DP staff who have a minimum of 2 years experience of COBOL or FORTRAN, hardware. Programmers must have on-line and database, whilst Analysts, in addition to a programming background, must have good business experience which includes user liaison.

## PROGRAMMERS EAST MANCHESTER

£7,000 to £8,500 + subsidised mortgages

Progressive financial house who greatly value their staff offer career positions to young coders with at least two years experience of ICL COBOL. Preference will be given to applicants with M29 and/or TM/PP.

## SYSTEMS PROGRAMMERS SOUTH MANCHESTER

£10,000

This company, a household name in the domestic high tech industry, are offering excellent career progress to successful applicants who will have experience of IBM hardware under DOS/VS using PL/I and/or CICS.

## PROJECT LEADERS, SYSTEMS PROGRAMMERS NORTH

£12,000 & £14,000 respectively

Candidates should be aged under 35 and have a classic OP background. Project Leaders must have a good business/commercial acumen with management experience in a OP environment. Systems Programmers (required at a variety of levels) will have sound ASSEMBLER experience. Superb career opportunities in a progressive OP Department which offers a first class benefits package.

## IBM PROGRAMMERS, ANALYSTS, SYSTEMS ANALYSTS MANCHESTER based

£8,000 to £14,000

Well respected Systems/Software House who have recently opened a Northern Office have vacancies throughout the North for IBM specialists with a minimum of 2 years experience. Permanent positions offering medium and long-term advancement where particular requirements are for expertise in COBOL, CICS, PL/I and SYSTEM 38.

## BUSINESS/SYSTEMS ANALYSTS SOUTH WIRRAL

£9,500

This is a good career move for Business orientated Analysts. Ideally you will have experience of Data Analysis and/or Production Control, but these are not essential requirements for a move into this large company.

## ANALYSTS/PROGRAMMERS LANCASHIRE

£9,500

This major manufacturing company who are dedicated to continued expansion utilising computerisation, offer varied career opportunities to A/Ps with a minimum of 3 years experience. Main requirements are for DG Mini experience with programming in COBOL and FORTRAN.

## PROGRAMMER/ANALYST MERSEYSIDE

£8,000 to £10,000

An excellent opportunity for a DEC Programmer to progress into Analysts where the work will involve interactive languages. Major retail organisation which uses MUMPS.

## REAL-TIME PROGRAMMERS/DESIGNERS MANCHESTER/SWEDEN

£10,000 + Overseas Subsistence

This leading Systems/Software House offers superb opportunities to applicants with 2-4 years experience of PASCAL on any Micro, although MOTOROLA and INTEL are preferred. Permanent positions offering an initial year in Sweden with the opportunity to renew or to transfer to the UK or elsewhere overseas.

## SYSTEMS PROGRAMMERS LIVERPOOL

£11,000

Applicants must have at least two years experience of IBM ASSEMBLER and COB for this major installation which offers challenging and exciting career prospects.

## ANALYST or SYSTEMS ANALYST LAKE DISTRICT

£9,000

Applicants, preferably aged 25 to 35, must have at least 3 years good systems analysis experience involving both mainframes and minis or micros. The next 5 years in this OP department will include a total review of all systems and accordingly significant Database and Business Systems experience are essential, preferably with exposure to manufacturing/production/commercial environments.

## DEVELOPMENT PROGRAMMERS SUPPORT PROGRAMMERS SOUTH MANCHESTER

£9,000

These positions only apply to recent Graduates and offer an exciting and challenging opportunity to join new teams developing commercial products. Particular requirements include a minimum 18 months post-grad programming experience and a detailed knowledge of any of: COBOL, FORTRAN, C, PL/1, Z80 or Z8000 ASSEMBLER and familiarity with any of: ARCUS, UNIX, ZRIS, MTOS, CP/M or MSDOS Systems. Programming expertise using IPA, SNA, or DBCNET would also be useful.

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## PROGRAMMERS LEEDS

to £8,250

You will need a minimum of 2 years COBOL experience and knowledge of TP based applications for these newly created positions with an expanding Blue Chip Company. Major developments in Manufacturing, Commercial and Production Systems are planned and prospects are excellent.

## PROGRAMMERS NEWCASTLE

to £7,900 + major benefits

Programmers with a minimum of 18 months ICL COBOL experience, are sought to undertake development roles on this large mainframe site. Any experience of VME/IMS or TPMS would be preferred, but is not essential, as training will be given.

## TECHNICAL PROGRAMMER NORTH YORKSHIRE

to £8,400

This multi-national research organisation is currently seeking to fill a key position within its development department. A solid FORTRAN background and in-depth knowledge of research based applications are a must. Experience of micros and/or database systems would be of interest.

## PROGRAMMERS LEEDS

to £10,000

Programmers at all levels can expect rapid career progression with this progressive PDP installation. You will need a minimum of 12 months commercial systems experience combined with thorough BASIC + /RSTS expertise.

Contact JOHN MASON or GARY SMITH on Leeds (0532) 455911 during office hours, or JOHN MASON on Leeds (0532) 486967 evenings and weekends, or write to the address shown left.

## PROGRAMMER/ANALYST WEST YORKSHIRE

to £10,000

The essential requirement for this position is 3 years IBM COBOL experience gained within a DOS environment. You will work on the development of large financial applications and experience in this area would be an additional advantage.

## PROGRAMMER/ANALYST WEST YORKSHIRE

£8,500

This progressive software house is seeking a Programmer/Analyst with a good ICL background to undertake a customer support role. Sound ICL COBOL is a must whilst exposure to Transaction based systems would be a plus.

## SENIOR ANALYST/PROGRAMMER TYNE & WEAR

£9,000

A small SYSTEM 38 site is currently seeking a senior level Analyst Programmer. You will need good RPGII programming experience, sound knowledge of the analysis discipline and can expect to work with a high degree of autonomy.

## ANALYSTS WEST YORKSHIRE

to £11,500

Analysts at all levels are sought by this major user to fill several newly created posts. You should be able to offer broadly based commercial systems experience and ideally will combine this with exposure to on-line and database applications. These are excellent opportunities within a secure and growing environment.

## PROGRAMMERS SHEFFIELD

to £7,500

This high technology company, developing real-time terminal systems, is currently seeking two good programmers with solid ASSEMBLER experience. Hardware background is unimportant but strong motivation and the desire to progress are essential.

## TECHNICAL SUPPORT PROGRAMMER WEST YORKSHIRE

£10,000

Unix Specialists are sought by this major hardware manufacturer to act essentially in a consultancy role. You will support a wide range of users throughout the region and can expect varied and stimulating technical involvement.

## PROGRAMMER LEEDS

to £10,000

A highly professional software house developing systems around HP hardware is currently seeking a Programmer to undertake a range of development work. A minimum of 12 months HP 3000 COBOL is required and knowledge of IMAGE and VIEW would be preferred.

## SYSTEMS ENGINEER WEST YORKSHIRE

£12,500

This major manufacturer requires several people to strengthen its customer support team and play a key role in planned expansion. You should have good analysis and programming experience and ideally will have a software house/services background.

**Provident Life** are an established Life Assurance Company (a member of the world-wide Winterthur Swiss Insurance Group), currently situated close to Liverpool Street Station. The company intends to relocate to Hampshire within the next 2 years.

**Extensive development** has taken place over the past few years and we now operate large and complex real time and batch systems on two ICL 2958 processors. In addition, two System mini computers (DEC-PDP11) are used, running under RSTS/E.

As a result of the company's commitment to further major development, we have the following requirements.

## Systems Analyst c. £11,500

Candidates should have a minimum of 2 years experience, preferably gained in a financial environment, that has covered the major phases of a development project. Knowledge of ICL IDMS would also be a distinct advantage.

## Analyst/Programmer c. £11,500

For this position the ideal candidate should have 3-4 years experience including a solid ICL COBOL background coupled with sound systems experience. Formal systems training would also be desirable.

## Assistant Operations Supervisor c. £10,000

Applicants will probably have held a senior position in the operations area such as chief operator or shift leader and will therefore be able to work on their own initiative. Sound experience in most of the following areas is essential:

- DME Operating & Utilities
- VME Operating
- Q2+ Macro Writing
- VME SCL Writing

However the most important attributes are self-motivation, adaptability and the genuine desire to make a varied and all round contribution to the running of the operations section.

In addition to regular salary reviews, we offer a generous benefits package which includes a staff mortgage scheme, non-contributory pension, flexitime, season ticket loan, free lunches and a Christmas bonus. A relocation package will also be available as appropriate.

If you think you have the drive and relevant experience for any of these requirements please call Christine McLean on 01-734 7394, to discuss the positions or send your CV to this address.

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43-44 GREAT WINDMILL STREET,  
LONDON W1V 7PA

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association

## COBOL Programmer

£6500-£9000 plus Bonus

Our Client, a major International Group, is currently engaged in the development of a nationwide network of HP3000 mini computers.

Additional openings now exist for Programmers to join the Company's elite Group Development Department based at their impressive Head Office complex which is situated in a pleasant rural setting, North of Bristol.

If you can demonstrate up to 18 months solid COBOL experience in a mini computer environment (preferably HP3000, although this is not essential) then our Client can offer:

- \* Competitive salaries;
- \* Substantial bonus;
- \* Training (where appropriate);
- \* Good prospects for advancement into Analysis and Project Leader roles.

Conditions of employment are good and include generous relocation assistance where necessary.

For further information and application form, contact Ian Payne, Major Account Manager at the SCR Birmingham Office on 011-336 3781, alternatively write to him with brief career details at the Birmingham address shown below.

Specialist Computer Recruitment Ltd

SOUTH  
James House, 40 James Street,  
London W1A 6JL  
01-835 0671/486 0481

MIDLANDS & INTERNATIONAL  
30-37 Great Charles Street,  
Quintonway, Birmingham B3 3JY  
021-236 3781

NORTH  
International House, 64 Deansgate,  
Manchester M3 3EE  
061-833 8427

BELGIUM  
Avenue Louise 327,  
Belle 4, 1050 Brussels  
010 320 440 7161/71

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**Service Manager**

Inner London: Salary to £12K + Bonus

A leading supplier of UNIX based micro systems and networks is poised for a period of rapid growth. The Company has recently established a nationwide Service and Support Division having its Headquarters in The City. Our Client is seeking a Service Manager, probably aged 27-35 years with at least 3 years experience gained in a similar capacity with a micro systems supplier or manufacturer. The position on offer is both exciting and evasive.

Ref: L/6/A

**Systems S/W Development**

W. Home Counties: Salaries to £16K

Software Engineering Professionals are currently required by the development division of a leading U.S. Systems Supplier. Suitable applicants should hold a first or second class honours degree in Computer Science, Mathematics or Electronic Engineering supplemented by at least two years software development experience in a real-time microprocessor environment.

Familiarity with distributed processing techniques, communications software, office automation systems or personal computing would be an advantage, but, more importantly, you should be innovative, flexible and have the ability to learn quickly. Working as a member of a small team, you will be encouraged to develop your own ideas whilst liaising closely with your team colleagues.

Ref: L/6/B

**Process Control**

London: Salaries to £16K

A leading U.K. Systems House and Consultancy is currently seeking Programmers, Analysts, Programmers and Consultants for its London-based Industrial division. Applicants should be graduates with a minimum of twelve months real-time industrial programming experience. There is a strong preference for candidates who are familiar with PDP 11, VAX 11/780 or HP 1000 hardware, but candidates who have software development experience on other mini-computers should not be deterred from applying. For the more senior positions, you should have current or recent experience in process control applications particularly within the food, drugs or energy industries.

Ref: L/6/C

**Micro Data Base Development**

London &amp; H. Counties: Salaries to £12K

Programmers and Analyst Programmers familiar with the latest relational database management techniques are urgently required by a number of our clients. Familiarity with Ruyon, D Base II or any of the databases capable of being run on a leading micro-based system is essential, and should preferably have been gained during the development of applications programs for commercial users.

Ref: L/6/D

**Coral 66 Programmers**

S. Home Counties: Salaries to £11K

Applications Programmers and Designers are currently required by the software development division of a leading Systems Supplier. Suitable applicants should offer a minimum of eighteen months CORAL 66 programming experience in a real-time mini computer or microprocessor environment. Particular hardware experience is not important, but familiarity with PDP 11, VAX, Fortran Argus or the GEC 4000 series would be a distinct advantage. Our client offers an excellent training programme and there will be every opportunity for successful applicants to learn new skills and progress into either a Management or Consultancy role.

Ref: L/6/E

**CAD/CAM Sales Executives**

E. Midlands: Salaries to £30K (O.T.E.)

Our clients have recently negotiated an exclusive distribution agreement with a leading supplier of 32 bit UNIX and ETHERNET based CAD/CAM systems. To capitalise on this revolutionary product line Senior Sales Executives are urgently sought for the East Midlands and City offices. Successful candidates must demonstrate a conspicuous level of achievement and commitment in the sale of integrated CAD/CAM systems to large and multi-site users. On appointment all new employees will receive extensive product training, most likely in the U.S.A., and thereafter on a six monthly basis. Our clients offer a generous basic salary and sales related commission scheme. All positions carry a car or car allowance.

Ref: L/6/F

**Macro 11 Programmers**

Hants/Berks: Salaries to £11K

MACRO 11 Programmers, with at least 12 months post-graduate industrial experience, are required by a small but rapidly expanding Systems House. As their current projects are largely in the field of distributed, multi-microprocessor and mini-computer based systems they are particularly keen to attract candidates with such experience. More importantly, however, they are looking for applicants with substantial PDP or VAX exposure especially if combined with low-level programming on Intel, Zilog or Motorola micros. For those exhibiting above average ability, the prospects for rapid promotion and career progression are substantial.

Ref: L/6/G

**PICK Software & Applications**

Thames Valley: Salaries to £13K

PICK is increasingly thought of as a viable technical and commercial competitor of UNIX. A number of manufacturers and systems suppliers have requirements for PICK Applications Programmers and Systems Development Engineers. Successful candidates will have a minimum of two years programming experience with PICK systems and should be familiar with the PICK system and other relational or intelligent RDBMS.

Ref: L/6/H

**UNITED STATES  
IBM 8100 OR  
SERIES 1**

Our client, a major supermarket chain located in a lovely rural area of New Jersey, is so delighted with the quality of the people they have so far recruited from UK, that they are looking for a further 10 programmers and analysts to join their permanent staff.

There is a vast amount of new development being carried out, and Series 1 programmer analysts must have first class EDL and EDX knowledge, and good business skills. They will be part of a team developing new software products for automated supermarket stores using advanced scanning technology.

8100 programmer analysts must have really sound COBOL and DPPX experience, and will be developing advanced on-line warehouse systems, incorporating stock control, accounting, vehicle routing etc.

Working conditions are excellent, and successful applicants will receive a final interview in New Jersey, a full US salary and a comprehensive family relocation package. This is a lovely area of the United States, close to beaches, State parks and mountains. Call me today for an information pack and application form, or send me your résumé.

Clive Williamson 0604 711209 9 a.m.-9 p.m. any day

**Computer & Management Personnel**

72 Kingsley Road, Northampton NN2 7BL

**The IBM SYSTEM 34/36/38 Recruitment Specialists**

**MARCH COMPUTER SYSTEMS LTD.** one of the UK's leading software houses specializing in IBM Systems 34/36/38 now have the following openings:

**RPG III** Project Leaders  
Analyst/Programmers**RPG II** Project Leaders  
Analyst/Programmers

Join us to work in our unique environment developing systems on our In-House Systems 36/38 for blue-chip clients in the UK and abroad:

**Bespoke Systems****Multicurrency Distribution Package****MRP-II Software (Data-3 Package)**

To apply please call **Richard Mileum** on **01-354 1055** during office hours or on **01-958 2553** during evenings and weekends. All response will be strictly confidential.

**MARCH  
COMPUTER  
RECRUITMENT LTD**  
1 NOEL ROAD, LONDON N1 8HQ  
01-354 1055**COMMAND AND CONTROL****SYSTEMS DEVELOPMENT AND MARKETING  
To £20,000**

The highest standards of excellence, across a broad spectrum of applications, has earned Software Sciences an enviable reputation for providing successful systems. A professional approach combined with technical expertise, has enabled us to become one of the largest systems houses in the UK.

High availability, real-time operational computing, communications and information systems are essential to effective command and control in emergency services. An increasing market for our services internationally has produced an opening for a project leader to contribute to our progressive and substantial growth.

We are seeking candidates with a good technical background in the command and control/emergency services field, who will be responsible for the definition and development of business strategy for police, fire and ambulance systems. These services may involve a mixture of consultancy, design and development of software and products and turnkey systems.

Currently working in a Software House or in an operational environment you should have a broad knowledge of technical and applications developments in the field, and want to be heavily involved in marketing the products or systems designed. You will be preparing business plans, providing technical support, monitoring development progress, evaluating products acquisition and providing consultancy services.

In return we offer an excellent salary, a wide range of company benefits and assistance with relocation where appropriate.

Location: Farnborough, Hants.

For further information, please ring our consultant Francesca Drinkwater or send a detailed C.V.

**SOFTWARE SCIENCES****EMERGENCY  
SERVICES****D.P. Recruitment**

Bilton House, 54-56 Uxbridge Road, London W5 2ST Tel: 01-587 5501

S8002

**The  
Power of  
Observation****RPG Analyst/Programmer  
Ready to become a D.P.M.?**

Essex

c. £11,000

This is an ideal opportunity for a competent Analyst/Programmer to move into a management position. Initially, the main emphasis of the job will be the implementation of new manufacturing systems.

Our client is an agricultural engineering company with international markets, part of a £180 Million turnover group. The company has had an IBM System 34 for over 2 years, primarily to run Order Entry and Accounting elements of MAAPICS.

The incoming DPM will be required initially to implement production systems, again using MAAPICS. Thereafter, responsibilities will include overall control of the D.P. Department, all further development and ad-hoc user requirements. Reporting directly to the head of finance, the DPM position has much potential. The company has a great deal of commitment to modernising its systems and methods. This may necessitate an upgraded computer system within the foreseeable future.

If you feel confident about meeting this challenge please contact ABAXAS today. The entry qualifications are 3 years Programming, Design and Analysis experience using RPGII. Additionally you must have some exposure to IBM System 34 or 36, Manufacturing Applications (preferably MAAPICS) and user liaison.

Conditions of Employment include 25 days holiday, excellent pension scheme and negotiable salary reviewed after 3 months of service.

To discuss this position further please contact VIVIANE GREEN of ABAXAS, preferably by telephone on 01-388 0111.

**SOFTWARE SCIENCES****D.P. Recruitment**

FREEPOST, LONDON W5 2ST

Tel: 01-587 5501 (24 hour answering)

NAME	_____
ADDRESS	_____
HOME TEL	_____
WORK TEL	_____

S8001



## SENIOR APPOINTMENTS

### Sales Executives

**London Home Counties Advanced Data Communications**  
Due to rapid expansion, Dynatech Communications wish to appoint Sales Executives for London, Herts and Essex. Successful candidates will be involved in selling a sophisticated range of data communications equipment, including:

- ★ Protocol Analysers
- ★ Matrix Switches
- ★ Statistical Multiplexers
- ★ Network Management Equipment
- ★ Network Control Equipment
- ★ X.25 Communications Processors

Annual target earnings will be in excess of £20,000 plus car, together with other benefits expected from a major international organisation.

Ideally you will be aged 25 to 35 with a degree or HNC in Electrical or Electronic Engineering and a background in Data Communications and/or Computer Equipment. Previous sales experience is not essential.

*Stop Press!*

#### Product Specialists

We also require Data Communications Specialists to operate within the Sales environment. Experience with communications protocols would be an advantage. Salary will be negotiable, according to experience. A company car will be offered together with excellent benefits.

For further details of both positions, please telephone Julian Kirkness today on (0628) 74274, or write to him at Charvil Lewis International, 27 Marlow Road, Maidenhead, Berks SL6 1AE.

**Charvil Lewis**  
INTERNATIONAL

on behalf of



### Account Managers

**High Basic Salary £25-£30,000+ Car**  
**BERKSHIRE/MANCHESTER**

X-DATA LTD is a wholly owned subsidiary of the Dyneer Corporation, a financially strong USA company with clear objectives for increased penetration of the European computer and peripherals marketplace.

As part of this planned expansion, the company's recently appointed Sales Director seeks professional sales executives to increase growth within existing and new OEM/National Accounts areas. Products include the highly successful OKI™ printer range, new daisy-wheel and monitor products and potentially IBM™ compatible communications equipment.

To take advantage of these career building opportunities, you must be aged 25-40 and have:

- ★ Proven sales success in peripherals/microcomputers plus
- ★ Strong technical knowledge of these product areas plus
- ★ (Ideally) key account sales experience

For further details of the excellent remuneration package and international career prospects, telephone Ken Allwright today on (0628) 74274 or write to him at Charvil Lewis, 27 Marlow Road, Maidenhead, Berks SL6 1AE.

**Charvil Lewis**  
INTERNATIONAL

on behalf of

**Dyneer**

### EVERYBODY WANTS

A challenging career, the financial rewards for doing a good job and the better lifestyle that goes with them. We can offer Programmers and Analysts/Programmers the opportunity to earn up to

**£30,000**

(inc. excellent benefits package)

In the exciting environment of NEW YORK. We are seeking DP professionals for permanent positions with the following skills:

**IBM COBOL or PL1  
IBM PL1 and Assembler  
IBM Systems Programmers**

**with CICS  
with IMS  
with MVS**

Call 01-836 8775 for further details

P.S. We also have vacancies in other US cities and requirements for people with skills such as DBMS, HP3000, System 38, etc.

**Computer Personnel International**

20-32 Southampton Street, London WC2. 01-836 8775

### ITN COMPUTER MAINTENANCE ENGINEER

Salary up to £14,500

Independent Television News Limited seeks a software maintenance engineer who is competent to maintain a wide range of computer equipment from Onyx C8002, DEC LSI11 and similar micro to VAX 11/780 and PDP 11/40. These machines are in use in current and controlling information processing and storage systems, TV special effects and graphics equipment.

The successful candidate will have gained wide experience in maintaining complete hardware systems and be able to assist with future system development. Candidates should be qualified to degree standard or equivalent. An understanding of PAL TV techniques would be an advantage as an aid to servicing complete systems, including the video processing chains.

The position is based at our Central London Studios and includes a generous pension scheme and free life insurance.

Please telephone the Personnel Office on 01-637 3144 for application form, quoting reference number 0302012, between 10am and 4pm.

ITN is an equal opportunities employer

#### Would you like to run your own business?

The Evolution Franchise Group is looking for experienced computer personnel with sales and/or software experience.

We will: Organise Premises  
Provide training in Synergy Software

Assist in staff recruitment  
Help raise finance (a total investment of between £30K-£40K is envisaged to include an IBM PC networking system).

The franchise group is based on the highly innovative SYNERGY Software. SYNERGY is a document based system with all standard application modules which also integrates with WP Systems, Spreadsheet and Database. It is multi-user and not working and can work on mini and mainframe systems.

If you are interested call David Booth on 0274-309924 for further details.

(0274)

#### INSEAD EUROPEAN INSTITUTE OF BUSINESS ADMINISTRATION

seeks an

#### ANALYST PROGRAMMER

for a scientific application using Fortran. 3-4 years' experience required.

Urgently required

Send a detailed c.v. and photo to:

SERVICE ONE PERSONNEL  
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Bd. de Constance  
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(0770)

**REAL TIME - WEST COUNTRY  
PERMANENT & CONTRACT E&E**  
DEC VAX/PDP 11 - FORTRAN ASSEMBLER  
SOFTWARE ENGINEERS - MICROS, ASSEMBLER PASCAL  
SYSTEMS SOFTWARE - TELE/DATA COMMS  
SPECIALISTS  
Phone BRISTOL (0272) 420831 for further details

AS Executive (Bristol) Ltd.

0272 420831

(0770)

### Shift Control Officer

CARDIFF up to £15,000

Marketing and distributing gas throughout Wales is a large and complex operation, and computer services are making an increasingly important contribution. Wales Gas are now looking for a Shift Control Officer to supervise and control a computer operating shift on a rota basis.

Located in prestigious purpose-built accommodation in the centre of Cardiff, our installation consists of dual ICL 2966 processors, GTS tape decks, FDS640, FDS160 and EDS80 disc units, LP1500s and NPS front end processors.

This is a key management position with specific responsibility for setting work priorities; providing operational support in respect of hardware, software and application programme malfunctions; monitoring throughput against schedules; maintaining operating standards; user liaison; training shift personnel and participating in the implementation of new hardware. We operate a 24 hour, five day week and you will be required to work appropriate shift patterns.

Applicants, male or female, must have ICL VME 2900 operating experience together with at least seven years' in computer operations including two years at supervisory level. You are likely to be at graduate level but more importantly have well developed leadership and organisational skills.

Starting salary is £13,000, including shift allowance, rising to £15,000. Benefits are those normally associated with a large successful organisation and include relocation assistance where appropriate.

To find out more, ring Ian Campbell on (0222) 33131 ext. 3490, or apply in writing, quoting ref H45/86 to: Graham Moore, Senior Personnel Officer, Wales Gas, Helmsley House, Churchill Way, Cardiff CF1 1AB.

**WALES GAS  
NWY CYMRU**

# IBM EXPERIENCE? SPEAK OUR LANGUAGE?

Bank of America is a world leader in the international finance sector. We recognise the need to develop the highest quality business systems for the future and are committed to the expansion of our UK Systems Centre in Croydon. Our 1984 recruitment campaign is now under way and we are looking for ambitious systems professionals at all levels of experience, from Analyst/Programmer to Team Leader. We also have opportunities for Systems Programmers.

We are a major on-line IBM environment developing systems on the most up-to-date equipment (IBM 3083 and 3033 mainframes) using IMS DB/DC under MVS/SP and VM/SP.

### Systems Analyst/Programmers

Can expect salaries around **£12,500** pa. For experienced **Senior Analyst/Programmers** up to **£14,500** pa.

### Team Leaders & Consultants

Could be worth up to **£16,000** pa - rising to **£17,500** pa and a car at the most senior levels.

### Systems Programmers

With an IBM package support or mini/micro background can expect up to **£14,500** depending on experience.

You'll be joining a young and vigorous team where ambition and ability are rewarded with career progression and an excellent salary package. Generous benefits include a yearly bonus scheme, home loan at 5%, free pension scheme and private health insurance. We are happy to talk about relocation.

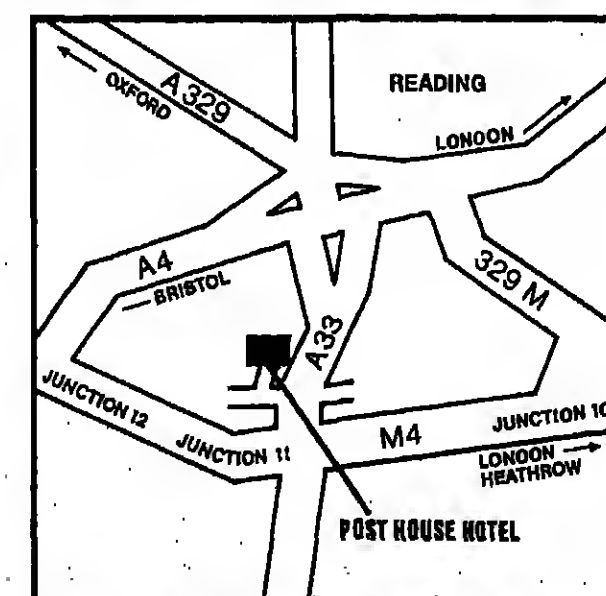
Our working conditions are excellent. During 1984 we are moving into a brand new purpose-built Systems Headquarters.

So come and talk to us about your future. Meet our managers and staff, find out about our development strategy and hear just how much we have to offer. All with no obligation of course. We think you'll find we speak the same language.

If you can't come along to meet us don't worry. You can still find out how you can join us changing the world of international banking by writing to Sue Stephen, Bank of America, 7-15 Lansdowne Road, Croydon CR9 2HA. Or telephone her on 01-681 2611.

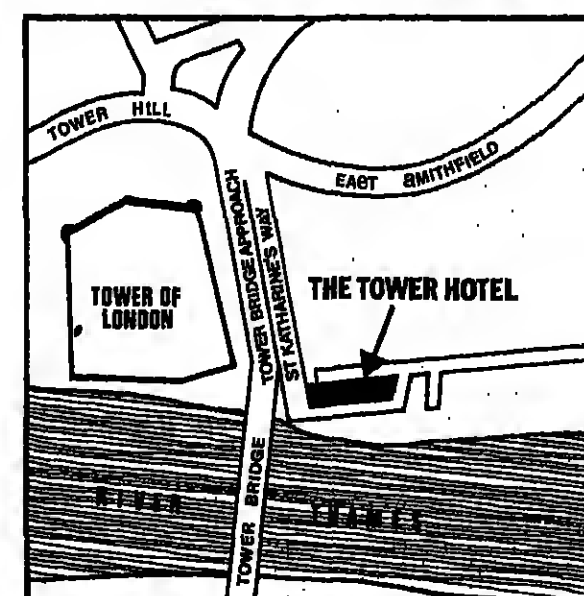
## COME AND MEET US AT:

**The  
Post House Hotel**



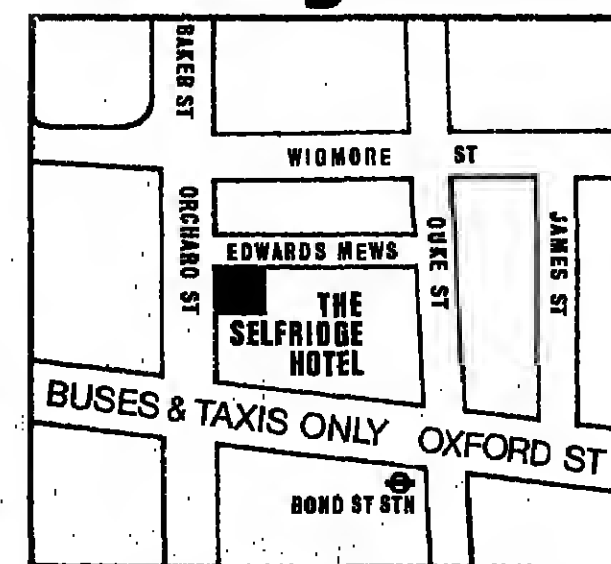
**Basingstoke Road, Reading**  
**on Tuesday 14 February**  
**between 12 noon and 8.30pm**

**The  
Tower Hotel**

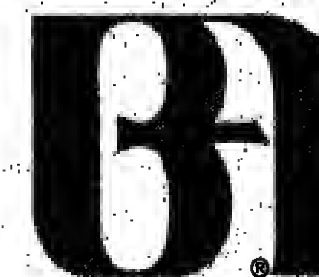


**St Katherine's Way, London E1**  
**(next to Tower Bridge)**  
**on Wednesday 15 February**  
**between 12 noon and 8.30pm**

**The  
Selfridge Hotel**



**Orchard Street, London W1**  
**on Thursday 16 February**  
**between 12 noon and 8.30pm**



**BANK OF AMERICA**

**CHANGING THE WORLD OF INTERNATIONAL BANKING**



## FOURTH GENERATION PICK BASED SYSTEMS

CITY

We are a national firm of Chartered Accountants with 19 offices, whose London practice specialises in the Lloyd's Insurance market. We use networked PRIME 750 and 550 processors, supporting 60 terminals, for major financial and accounting systems written in COBOL and INFO. Key areas of planned activity include development projects using PRIME INFORMATION, microcomputing, a new word processing system (with over 30 workstations initially) and communications with regional offices.

We seek experienced, highly motivated professionals with good project management skills to take leading roles in two of our challenging development projects. You will work in attractive modern offices adjacent to Liverpool St. station as one of a 15 strong Information Systems Department.

### SENIOR ANALYST TO £15,000

You are likely to have a minimum of five years data processing experience, of which at least two years would have been spent developing financial and accounting applications. You are good at working with users and liaising with senior management. You have taken projects through from feasibility to implementation.

Applications with full C.V. to Philip Everast at NEVILLE RUSSELL, 246 Bishopsgate, London, EC2M 4PB. Telephone 01-377-1000 for further details.

### SENIOR ANALYST/PROGRAMMERS TO £14,000

You are likely to have five years programming experience, of which at least two years have been spent using PICK based software. You will have had responsibility for the design and implementation of at least one major project. Experience using PRIME INFORMATION would be a distinct advantage.

177381

## Technical Support Manager

State-of-the-art computer  
graphics systems  
Neg. salary  
+ car

To qualify for this demanding new position, you must have successfully provided technical support in the computer industry for at least three years.

You will certainly need to have gained a thorough knowledge of operating systems, telecommunications and graphics. Aged around 30, your academic qualifications will include a degree in computer science or another numerate discipline.

Match our specifications and you could be the specialist we need to develop and manage a team of applications software specialists and technical support analysts.

You will be responsible to the Marketing Director of Sigmex - the wholly-owned sales and marketing subsidiary of Sigma Electronic Systems - for providing high-quality pre and post-sales technical support on the most advanced computer graphic display products currently being designed and produced in Europe.

The first-class remuneration package includes a substantial negotiable salary and will be attractive to high-quality candidates. Usual large-company benefits plus relocation assistance for the man or woman appointed.

Please send full cv, including current salary, or write for an application form to Mike Shiri, Personnel Manager, Sigma Electronic Systems Limited, Sigma House, North Heath Lane, Horsham, West Sussex RH12 4UZ. Telephone: 0403 50445.



SIGMEX

Ferranti Computer Systems Ltd.

## Defending the oceans with Software at sea

HAMPSHIRE

Each minute of the day, each day of the year, there are Ferranti ship control systems maintaining a constant vigilance over the oceans of the world.

This is all made possible by Ferranti's state-of-the-art real-time software.

Our advanced naval systems are used around the globe to enable highly trained service personnel to operate at optimum efficiency in data gathering, interpretation, weapon

allocation and control. Due to a continual expansion programme at our Portsmouth offices, we are looking for innovative and self-motivated programmers with experience in design and development of real-time naval software to enhance our existing reputation of software supremacy at sea.



Although we require staff at all levels, you should have:

- Degree in a numerate subject
- At least 2 years experience in development of advance real-time computer systems using CORAL/MASCOT technology
- Some experience of PDP/VAX or Ferranti FM 1600/ARGUS hardware would be an advantage

In return for your expertise, we offer a competitive rewards package expected of an internationally successful company, in addition to which you could expect:

- Generous relocation package (where applicable)
- Productivity bonus scheme
- Flexible working hours

- 5 weeks annual holiday
- Excellent career prospects
- Friendly, informal team environment
- Extensive on-the-job training facilities
- Subsidised staff restaurant

We are located in a pleasant part of Hampshire, close to both coast and countryside which provides the ideal environment for recreational and sporting facilities.

So if you're a software specialist, make sure you speak to Ferranti first.

Call Elaine Britton on Portsmouth (0705) 383101 Ext 3239, or write to her at: Personnel Department, Ferranti Computer Systems Ltd., Mountbatten House, Station Road, Cosham, Portsmouth, Hants PO6 1UD, quoting reference P/932/CW.

FERRANTI  
Selling technology

176591

### NHS COMPUTING - PROJECT LEADERS

Grade: Scale 14

Salary £9,404-£11,434 (new entrants to this NHS normally commence on the minimum of the salary scale)

The management Services Division of the West Midlands Regional Health Authority is responsible for many computing projects both within the Region and nationally, using ICL, Burroughs computers and a wide variety of mini and micro computers.

These projects require skilled professional project leaders who are capable of controlling teams of analysts and programmers who have the ability to plan and execute high quality work and liaise directly with different client groups within the NHS.

Successful candidates for such staff, based in Birmingham, if you feel that your career has led you to the point where you can handle real responsibility, please send now for an application form from: West Midlands Regional Health Authority, Personnel Division, 1st floor, Trent House, 200 Broad Street, Birmingham B15 1SW. Tel: 021 643 5761, ext. 41.

Closing date for receipt of completed applications, February 23rd, 1984.

(76361)

### LEICESTER POLYTECHNIC

Posts in Information Technology

Leicester Polytechnic is one of a select group of Polytechnics leading the development of innovative courses in Information Technology, defined as a new amalgam of computing and communications systems.

#### PRINCIPAL LECTURER Post 210

Salary Scale: £12,816-£13,858 (bwd) - £15,746 (max)

This key post offers an excellent opportunity to lead developments from Higher Technician level up to Masters Degree level in the field of Information Technology appropriate to the candidate's interests. A degree in Engineering, Science, Computer Science, Mathematics, together with suitable research or industrial IT experience is required. We are looking for someone to develop our interests in computer networks, data communications, office systems, such systems or any other aspect of IT applications.

#### LECTURER II Communications Systems Post 211

Salary Scale: £7,210-£11,662 per annum

This post offers a young graduate with some industrial or commercial experience an opportunity to develop a teaching career while undertaking study with industry. Experience in one or several of the following aspects of IT are required: PCL, System S, Satellite Systems, Control Systems, Microcomputers for Network Design, Operation and Testing, Social and Management Implications of IT.

Applications forms and further details from The Personnel Office, Leicester Polytechnic, P.O. Box 149, Leicester LE1 6EH. Telephone: Leicester (0533) 811581, ext. 2392.

176411

## MESSAGE SWITCHING

S-COM Computer Systems Engineers is a rapidly expanding software engineering company. (Our turnover has roughly trebled in each of the last three years). Our main expertise lies in state of the art developments involving communications (military, telephonic, area networks), process control, graphics and mathematical applications.

We have recently been retained (by one of our major accounts) to upgrade a digital PABX to meet exacting military standards. The initial phase of this work is investigative and requires existing systems to be documented according to ministry specifications.

We are therefore seeking to recruit two people as soon as possible to help with this project. Ideal qualifications would be:

1. Knowledge of JSP.188 standards
2. Knowledge of PABX or other telephonic or signalling systems
3. Knowledge of block structured and Assembler languages
4. Five-eight years' industrial experience for the more senior position
5. Three-five years' industrial experience for the second vacancy

The above posts are open to applicants seeking both

### CONTRACT or PERMANENT

employment.

Vacancies other than the above also exist within S-COM and salaries are extremely competitive typically falling into the following categories:

- Up to three years' experience
- Three to five years' experience
- Five+ years' experience

to £10K per annum  
£9-£13K per annum  
£12-£22K per annum

Remuneration for Freelancers for the above posts is £13-£14.50 p.h. and £12-£13.50 p.h. respectively, according to experience. In addition expenses £130 p.w. are payable.

For further details of the above vacancies, please call or write to Graham Blake, S-COM.

FOR DETAILS OF OTHER VACANCIES IN S-COM (CONTRACT OR PERMANENT) PLEASE CALL OR WRITE TO LAWRENCE MILLS.



Computer Systems Engineers Limited

Lower House, High Street, Aylesbury, Bucks. Tel: 0296 32025  
Evening after 7pm or weekends 0296 32025

## Marketing Services Manager

Computer graphics  
negotiable salary  
+ car

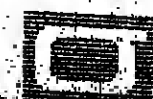
Sigmex is the wholly-owned sales and marketing subsidiary of Sigma Electronic Systems, Europe's leading designer and manufacturer of computer graphic display products.

In this newly-created position, you will be responsible to the Marketing Director for managing and motivating a team providing all commercial aspects of marketing in a highly technical field. You will also be expected to provide marketing consultancy services worldwide in support of overseas subsidiaries and agents.

A professional marketer, probably in your 30s and educated to degree level or equivalent in a business discipline, you must have sound and wide-ranging marketing experience gained within the computer industry, with specific responsibility for scientific and industrial markets. Well-developed communication skills and powers of persuasion are a prerequisite.

Salary will be made attractive to high-calibre men and women who meet our requirements; benefits are what you would expect of a highly successful international organisation.

Please send full cv, including current salary, or write for an application form to Mike Short, Personnel Manager, Sigma Electronic Systems Limited, Sigma House, North Heath Lane, Horsham, West Sussex RH12 4UZ. Telephone: 0403 50445.



SIGMEX

## COMPUTER DEVELOPMENT STAFF

ARE REQUIRED BY

### TRAVICOM

TO SUPPORT AN EXPANDING DEVELOPMENT PROGRAMME

Travicom is a Thames Valley based company involved in the provision of computerised facilities for the travel industry using the most up-to-date micro computer and communications technology.

#### OUR ACHIEVEMENTS TO DATE INCLUDE

- Linking 38 airlines to nearly 1,000 travel agency offices with laasas lina and dial-up procedures, including the new Traveller Viewdata system.
- An automated airline ticket printer service.
- Interfacing airline systems with office-based computer systems.

#### AN EXPANDED PROGRAMME FOR 1984/85 INCLUDES

- Connection to a new range of supplier host systems including car-hire and hotels.
- Implementation of a private X25 network to cover the United Kingdom.
- Enhancements to existing services.
- Further developments in ticketing and Viewdata services.
- Product marketing overseas.

Computer professionals are required to join the present experienced and highly motivated team based in Maidenhead. The staff likely to be selected will have a minimum of two years' experience in one or more of the following areas - Micro Computers, 'Unix', Programming in 'C' or Zilog Assembler, Communications Software, Terminal Systems or Airline Reservations.

Vacancies exist up to Team Leader/Senior Analyst level. Highly competitive salaries are offered and company benefits include free private medical insurance, life assurance, pension scheme, special holiday discounts, luncheon vouchers and 22 days' annual leave.

Please apply enclosing detailed cv to:

Mrs J. L. Drake, Personnel Officer  
TRAVICOM

13 Hermitage Parade, High Street, Ascot SL5 7HE  
or telephone Ascot (0990) 20175 for further information

## COMPUTER STAFF

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Requests for application forms should be sent to:

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The SNR Programmer (Development) will be responsible for the production of all development software to agreed installation standards and deadlines. He will enhance and maintain programming standards, maintain efficient programme testing service, and plan and control utilization of programming resources. Reporting to the EDP Manager, he will have responsibility for technical supervision of 20 programming staff, and for designing and maintaining staff training programmes.

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The bank has been a dedicated DEC user for several years and runs its Total Banking package together with VMS and DECNET on a network of five VAXs of which one VAX 11/780 is solely deployed to development work.

The successful candidates should have a solid programming background within a DEC environment to include at least one year with any VAX equipment. The ideal language would be MACRO 32 but the bank are prepared to retrain and therefore wish to interview analyst/programmers with MACRO 11 or any high level language. Applicants should be well educated and be good communicators but more importantly should have the ability and drive to join a team of enthusiastic analyst/programmers working in a stimulating environment. Previous banking experience would be an advantage.

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The Programmer will assist the above posts. Experience of a commercial language is essential and the use of a microcomputer language would be desirable.

The posts, although on the County Treasurer's establishment, are within the Police Computer Projects Branch which is based at Force Headquarters in Trafford, Manchester. For an informal discussion phone Andy Softley, Project Leader, on 061-872 5050 extn. 2782.

Application form, job description and further details available from the County Treasurer, Greater Manchester Council, Piccadilly Gardens, Manchester M60 3HR.

Closing date 15th February 1984.

176401

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## Hardware/Software

### Man-machine Communication

#### - Bridging the gap

Ferranti Computer Systems Limited is at the forefront of research into man-machine interaction.

Our Systems Research Group, based at Bracknell, is involved in the evaluation, design, application and demonstration of sophisticated techniques and equipment used to interface between man and machine.

Specific areas of activity are:

Image Simulators  
Display Controllers  
Speech Recognition and Synthesis  
Graphics Languages

We are seeking creative engineers to continue development in these areas and with the initiative to pioneer new techniques both in man-machine interaction and the field of artificial intelligence.

To qualify, you should be skilled in high speed logic design with relevant interests, experience and qualifications.

Previous experience of the use of embedded processors, of programming or work on displays would be particularly valuable. As you would expect from a company as successful as Ferranti, we offer excellent salaries together with comprehensive benefits including productivity bonus scheme, flexible working hours, 25 days' holiday and generous relocation assistance (where appropriate).

To find out more about these challenging career opportunities and Ferranti's state-of-the-art research into man-machine interaction, write to: Recruitment Office, Ferranti Computer Systems Limited, Western Road, Bracknell, Berks RG12 1RA. Telephone Bracknell 483232, ext 3471, quoting ref. no. B/584/CW.

17739

**FERRANTI**  
Selling technology

# Software Programmers

## Warley, Brentwood

### Up to £12,725

- IBM 308X and Amdahl 580 Processors
- 3380 Type Disks in 1984 and Amdahl 6280s
- MVS SP 1-3-3 MVSXA in 1984
- IMS DB/DC with International network
- VTAM/SNA in 1984
- TSO/Roscoe

One of the key features in Ford's emergence as clear leaders of the automotive industry is the extension of computer technology in every aspect of Ford's operations. Computer effectiveness is now synonymous with operational efficiency, economy and profit opportunity.

The Warley Data Centre supports a wide range of international systems with the emphasis

on a rapidly expanding on-line network. We are now looking for several Software Programmers to join our experienced team. The people we need should have at least 3 years' experience in MVS - and experience with IMS or VTAM would be an advantage - with a Computer Science/Scientific degree or equivalent.

These vacancies, which involve some European travel, are offered at a starting salary within the range of £9,598-£12,725 p.a., according to qualifications and experience.

If you have the experience and flexibility to succeed in this challenging and vital area of computer systems, there can be few finer career moves. Write to J. E. Flinders, Room 1/578, FORD MOTOR COMPANY LIMITED, Eagle Way, Warley, Brentwood, Essex CM13 3BW, or telephone for an application form on Brentwood (0277) 253412 or 252149.

هذا من اجل





# Technical Consultants Senior Programmers Programmers to £14,000

to join our expanding System Development Centres in London, Birmingham and Manchester

Rapidly increasing client demand means that we need to recruit additional top quality professionals to work on our challenging projects. To meet our requirements, you should have upwards of two years solid experience in one of the following disciplines:

**IBM COBOL with CICS & DL/1 or IMS DB/DC**

**ICL COBOL running under VME with IDMS or TPMF**

**HP COBOL or PASCAL using IMAGE, VIEW or QUERY**

For the more senior positions you should also have proven design and supervisory skills.

The salaries and benefits (including six-monthly salary reviews) reflect the standards we expect from our staff, and working for Hoskyns will mean advancing your career in a challenging environment.

Interviews will be held in London, Birmingham or Manchester, so to find out more about these opportunities, or to arrange a meeting for discussion, please call Louise Romain, our Recruiting Consultant, on 01-407 2531 between 9 a.m. - 9 p.m. including weekends. Alternatively, you may send your C.V. to her at:

Hoskyns Group Limited, Lynton House, 7-12, Tavistock Square, London WC1H 9LT.

*Louise Romain*

01-407 2531

1964-1984

**hoskyns**

MAKING COMPUTERS WORK FOR YOU

MARTIN MARIETTA  
Martin Marietta Data Systems  
(7265)

## The Art of the Science of Software Engineering Exploited

At IDEC, we talk about Software Engineering, Advanced Communications, CAD, knowledge-based and expert systems... but our primary purpose is to turn good ideas into useful and competitive innovation... software innovation.

Our Systems Division is involved in the design and implementation of real-time dedicated systems. We enjoy pre-eminent success in several markets including Digital PABX, Teletex, Pocket Switching and Local Area Networks. Our technologists train to exploit an extensive range of in-house tools. These include design languages: UNIX and C; together with some very advanced verification and test tools.

At IDEC you will learn fast. Not just because we devote considerable resources to education and

training... but mainly because our style is one of disciplined freedom... highly professional. Success is measured in terms of quality and delivery. Working conditions could hardly be better.

Substantial growth in 1984 calls for well-educated specialists to produce high quality software. Salaries are very competitive. The relocation package is generous.

If you're intrigued by innovation and the art of the science of software engineering, then this is the time to talk to us.

Contact David Duerden for a preliminary discussion in confidence on 0438 726161, or write to him for our Datopack at STC IDEC LIMITED, Six Hills House, London Road, Stevenage, Herts SG1 1YB.

**The centre of excellence in Software Engineering**

**STC IDEC LIMITED**

### ANALYST/PROGS VAX/PDP

to £14,000

We have been retained by several London based companies to recruit experienced Systems and Programming staff with a DEC based background and between one and four years' programming in either BASIC, FORTRAN or MACRO. Progressive positions are offered in the development of systems ranging from the financial to technical in both end user and software house environments. Attractive benefits packages are available and early supervisory slots are ready for more experienced applicants.

### CONSULTANT ICL

c.£13,000  
Package

A rapidly expanding Software House, based in Middlesbrough, is seeking a Systems Analyst to take a vital role as a Consultant working with a wide client base. The position will involve close customer liaison with all aspects of project working from definition through control. If you have at least two years' analysis and a desire to take an active part in a company's development this is a challenging and rewarding opportunity.

### ANALYST/PROGS ICL/COBOL

to £11,500

Due to major systems development this Kent-based company urgently requires Progs. and Analyst/Progs. for its ICL VME/DME installation. A minimum of 18 months' COBOL gained preferably in a commercial ICL environment is required. The positions offer good promotion prospects, training and benefits package to include relocation where necessary.

### ALL LEVELS HP 3000

to £15,000

We have numerous Clients in London and the Home Counties who urgently require experienced HP personnel ranging from Progs. Analyst/Progs. through to Project Leaders. The minimum requirement is nine months' HP COBOL or BASIC for the junior positions, with proven Analysis and supervisory skills for the senior levels. The companies range from small software houses to large in house installations and offer a wide variety of prospects and perks.

### ANALYSTS LONDON

to £13,500

We have been retained by three London-based companies to recruit Analysts with varying levels of experience. A sound D.P. background is required with preference given to candidates with general accounting application exposure. All positions involve extensive work on new projects and offer good career prospects. Perks are varied and include large company benefits and discounts and relocation expenses where necessary.

### ANALYSTS/PROGS BURROUGHS

to £11,500

A London company is currently looking for Analyst/Programmers to join their expanding team working on a variety of financial applications. Applicants should have a minimum of 18 months' COBOL to include some exposure to BURROUGHS systems. Any CMS experience will be of particular interest. Successful candidates will enjoy a good deal of client contact and must be professional in both appearance and attitude. Good prospects and conditions are offered.

### ANALYST/PROGRAMMER DATABASIC

£11,000

A rapidly expanding software house is currently recruiting Analyst/Programmers with a minimum of 18 months' DATABASIC gained in a PRIME or CMC environment. The software house actively encourages employees to service clients in a consultancy role therefore applicants should be presentable and have the ability to deal with first time users. The client can offer job satisfaction, regular salary reviews and intensive training.

### PROGRAMMERS PL1

to £11,500

A company offering a range of financial services has several requirements for PL1 programmers. The minimum requirement is for 18 months' PL1 in a commercial environment for the programming positions and up to four years' plus for the senior posts. Applicants should have good all round programming skills to include design, coding and implementation. Due to the size of the client there is a recognised career path which would lead through to systems if desired.

### ANALYST/PROGRAMMERS RPGII/RPGIII

£NEG

We have many clients, all of whom are SYS34 or SYS38 users, who have current positions for programmers and analysts. Applicants should have a minimum of six months' RPG from a commercial background through to three years' for the more senior positions (any MAAPICS would be of special interest). The companies range from Banking through to Manufacturing and offer a wide range of benefits.

404 4821

**Apex**

Apex Computer Recruitment Ltd.  
59 Grays Inn Road, London WC1X 8TL Tel: 01-404 4821.



# Programme Your Future and Analyse Your Prospects

Our clients have commissioned us to identify people for these URGENT requirements.

We have many other exciting opportunities for computer staff, particularly Programmers and Analysts, and would be very pleased to hear from you if you are considering a career move.

Your first step to pursue these exciting career opportunities is to telephone ANTHONY HALL, Computer Search & Selection, Hamilton House, Marlowes, Hemel Hempstead, Herts HP1 1BB. Tel: Hemel Hempstead (0442) 40761.

## Luton

**Project Leader** £10,000-£11,500 + car

Knowledge of manufacturing systems, preferably assembly based manufacturing, Bills of Materials, Production Control etc. Must have good personality and leadership qualities.

**Analyst/Programmers (2)** c.£9,000

Early-mid 20's with good knowledge of COBOL essential. Operating Systems, MVS/JES 2. Excellent opportunity to expand experience.

**Programmer** £8,000-£10,000

To work in a small project team with lots of scope for development. ICL 2955/58 under VME experience essential. If more senior, then must have VME/TPS/TDMS.

## Hemel Hempstead

**Junior Programmer** up to £7,750

12 months' minimum experience of IBM/COBOL, Operating Systems not important as training will be given.

## Middlesex

**Systems Programmer** c.£14,000

3-5 years' experience of IBM under OS/USI or MUS with CICS.

Computer Search & Selection

## SYSTEMS ANALYSIS

**CENTRAL LONDON** up to £12,000

DOES THIS OPENING MEET YOUR CAREER REQUIREMENTS?

- ☐ **MODERN TECHNIQUES:** database, on line end communications systems, high standards
- ☐ **FORMAL TRAINING:** a planned programme to enhance your skills
- ☐ **PURE ANALYSIS:** with a good proportion of development work, entirely in London
- ☐ **VARIETY:** mainframe, minis and micros; projects ranging from small to very big; team or individual responsibility
- ☐ **PROSPECTS:** very sound, in a busy installation, with ample new projects and opportunities for advancement.

This opportunity will interest either

- ☐ **SYSTEMS ANALYSTS** with upwards of two years' analysis experience (the application background is not critical, as our clients will provide retraining where necessary), or
- ☐ **ANALYST/PROGRAMMERS** who wish to move to systems analysis work.

If you feel that a move to a major, up-market installation would help your career, please ring us in confidence for a talk, quoting ref. 191. If it is more convenient for you to ring outside office hours, your message will be recorded.

(0710)



**EDP SYSTEMS** 01-637 5796  
52-53 Margaret St. London W1N 7FF

*We've got a Proposal for  
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At the Lorient Cheese & Wine Party

At Lorient, we don't aim to keep our intentions a secret. If you are in Computer Contracting we want you to know where you can go for a long lasting relationship, rather than a sudden infatuation.

That's why this is a unique opportunity for you to call in to the Lorient Cheese and Wine Party, at Seftons Bar, (opposite Marks & Spencer), Corporation Street, Manchester, from 5.30p.m.-9.30p.m., on Tuesday 14th February. Find out all you need to know about computer contracting at all levels-with Lorient.

You needn't just take our word-some of our highly satisfied existing Contractors will be on hand to give you their side of the success story. So, come along to the Lorient Cheese & Wine Party. We're sure you'll find we have an attractive proposition -because we've got what you're looking for.

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COMPUTER SERVICES LTD.  
*We've got it!*

Recruitment Consultants, OCS House, Service Road, Leeds LS2 1MG, Tel: LEEDS (0532) 454011

## Dixons

As the next stage in their development of d.p. facilities Dixons, the well known electrical retailers, are about to implement an IBM 4381 computer running under MVS. The machine is due for delivery in May 1984 and this decision has created a requirement for the following personnel:

## TECHNICAL SUPPORT MANAGER

circa £18,000pa plus car and excellent benefits

Based at the Operations Centre in Stevenage, the Technical Support Manager will report to the Computer Centre Manager and will have line responsibility for the day to day support of a mixed machine environment with a large point of sale network. Duties will include the management of 4 Systems Programmers, two of whom will be experienced systems programmers who will be retraining for IBM. The successful candidate will face a major challenge in implementing the new machine and will be heavily involved in advising senior management about establishing an IBM environment.

Applicants should be able to demonstrate good management skills, a capacity for problem solving and the ability to communicate their ideas effectively. Previous experience of establishing a systems support role within an MVS/CICS environment is essential and previous knowledge of networking and machine linking would be a distinct asset.

## 2 SENIOR SYSTEMS PROGRAMMERS

circa £15,000pa plus excellent benefits.

Reporting to the Technical Support Manager, the Senior Systems Programmers will be involved in supporting the operating software of the IBM 4381 machine. One of the successful candidates will have a major responsibility for the MVS operating system and the other for the CICS environment, and experience gained in either or both of these areas is essential. A knowledge of database systems also would be desirable.

These positions represent an exciting challenge for systems programmers to develop their careers in a green field situation. The successful candidates will have the satisfaction of using their problem solving skills to make a significant contribution to Dixons future d.p. developments.

## THE ENVIRONMENT

Machines: IBM 4381 Model 2  
Tandem  
ICL Point of sale network

IBM Software: MVS/JES 2  
CICS  
VTAM/NCP  
RACF  
TSO/SPF

**RELOCATION EXPENSES WILL BE PROVIDED WHERE NECESSARY FOR THESE POSITIONS.**

For further details please phone Chris Morrow of Total Selection who have been retained to advise on these appointments.



**TOTAL  
SELECTION  
LIMITED**

388 CITY ROAD LONDON EC1V 2QA

**01-837 0451**

Job in 1/10



# Widen your Horizons...

In 1984 our Client will be continuing with a major programme to extend their operations further across growth industries. They are working now on 'leading edge' software and hardware to develop solutions for a wide range of applications. Their horizons are expanding as fast as technology.

## Project Leaders to £14K Package + Benefits Central London

To lead large bespoke or application package development projects. Positions involve control of all aspects of application software development from initial client contact to implementation.

Applicants should have at least five years' DP experience with a background in COBOL or BASIC. Some previous supervisory experience is essential.

To maintain their growth they require additional personnel. They are looking now for people who want to develop their skills. They offer exciting new opportunities to become involved in a range of projects and have the resources to see them through. They could provide the chance you have been seeking to develop your career and widen your horizons.

## Software Engineers to £12K Package + Benefits Central London and West Midlands

To help develop software for intelligent terminal products in new business applications areas. The systems utilize advanced networking techniques that will interest candidates with communications software experience.

Applicants should be experienced in ASSEMBLER and/or PASCAL and should enjoy working on innovative developments which shortly will include voice recognition technology. A degree of client contact is expected.

## UNIX® Specialists

£ attractive and £ negotiable

London West Midlands Leeds Edinburgh

To provide technical consultancy services to customers implementing 'leading edge' computer systems supporting UNIX software. Applicants should have in-depth experience of UNIX or its derivatives and enjoy a high degree of end-user contact.

## Programmer Analysts to £12K Package + Benefits Central London

To work on the design and coding of customer applications. The positions will involve some client contact. Applicants should have at least two years' experience with a background in ASSEMBLER or 'C'. Appropriate training will be given where necessary.

In addition to the basic salaries, which will be reviewed in June, the Company operates a twice yearly bonus scheme based on Company profits. Also there is a wide range of benefits including a non-contributory pension scheme, a private medical insurance plan and a holiday discount scheme.

## Instructors

to £11.5K Package + Benefits  
West Midlands

To assist in extending a range of internal and external training courses to include operating systems and high-level languages. Experience specifically in UNIX, 'C', PASCAL, BASIC or COBOL would be desirable.

The positions offer scope for candidates to undertake training assignments abroad as required. Suitable candidates without teaching experience will of course be trained.

In the first instance applicants should telephone 01 835 0671 and ask for John Pitt, Senior Consultant at the London offices. Initial interviews will be arranged at the appropriate SCR regional office, at which time further information about the Company and the appointment will be made available.

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

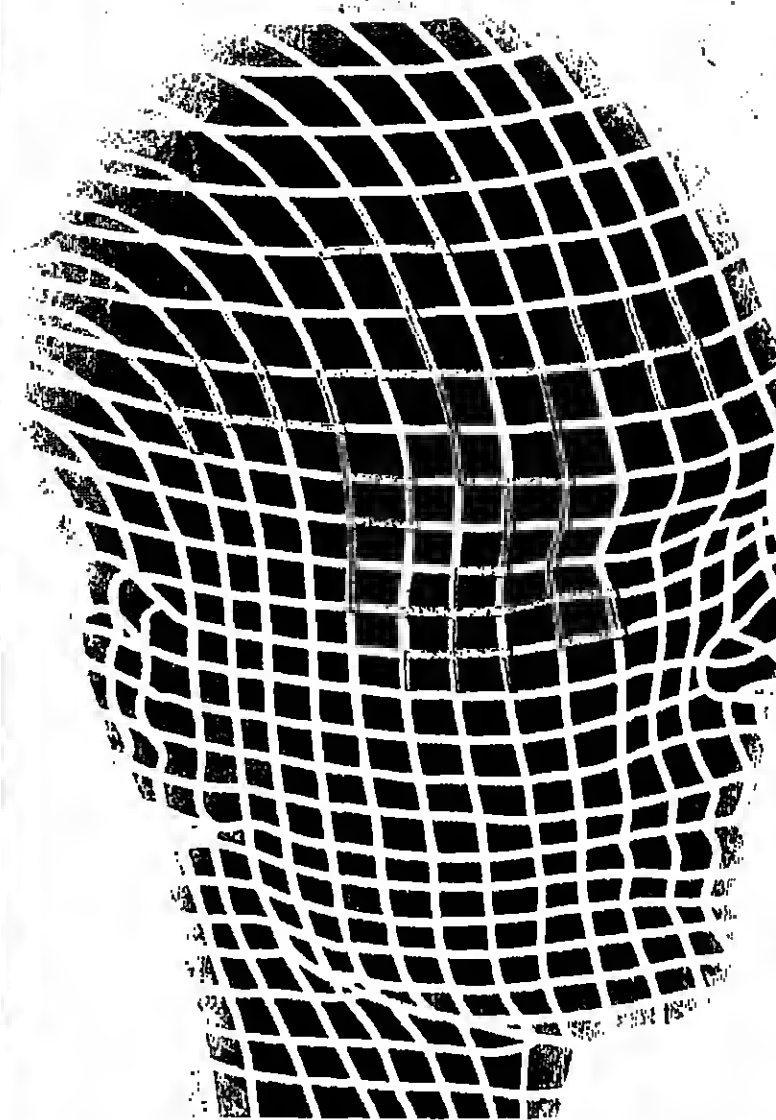
**SOUTH**  
James House, 46 James Street,  
London W1M 5HS  
01-835 0671/486 0461

**MIDLANDS & INTERNATIONAL**  
35-37 Great Charles Street,  
Queensway, Birmingham B3 3JY  
021-224 3761

**NORTH**  
International House, 84 Deansgate,  
Manchester M3 3EE  
061-426 9427

**BRUSSELS**  
Avenue Louise 327,  
Boite 4, 1050 Brussels  
020 222-640 7151/71

**AMSTERDAM**  
Willemstraatweg 92,  
1071 H.M. Amsterdam  
010 3120-780847



## Berkshire

If you are interested in becoming involved in some of the most exciting applications of modern technology — READ ON.

We are seeking a number of talented software engineers to act as Project Leaders and Senior Programmers in the development and implementation of a wide variety of real-time manufacturing based systems for the MARS Group of companies throughout the U.K. Taking projects from inception to final implementation, you will apply your undoubted technical skills to the development of complex modern communications, process automation, and factory information systems.

Ideally we are looking for honours graduates, up to 32 years of age, who are keen to progress their careers in this fast moving and dynamic international group of companies. You must possess experience of at least two of the following:

1. PDPIRSX
2. PASCAL/CORAL/RTL2
3. Industrial applications.

## To £17,000 p.a.

Successful applicants will be given full training in VAX/VMS where necessary.

In the first instance please telephone the number below quoting reference 0807 or clip the FREEPOST coupon and by return you will receive an application form and company profile.

By return of post, please send an application form and client company profile to:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Home tel. no. \_\_\_\_\_

Business tel. no. \_\_\_\_\_

(Used with discretion) 0807

**COMPUTASTAFF**

FREEPOST, London SW1H 9BR 01-222 8722 Telex: 894384

**MARS GROUP SERVICES**



**Bristol**

# Network Facilities Manager

To £13,000 + Car

We wish to recruit a Network Facilities Manager to be responsible for all aspects of communications within a new subsidiary Company in Bristol. This position is at a high level within the Company and represents a challenging and progressive opportunity, consequently we seek a true professional with sound experience and high levels of self motivation.

You are probably in your late 20's, with a background that includes experience in an Operations/Comms capacity within an in-house installation, very likely enhanced by time spent in a DP Services Organisation. Certainly, your career has been moving towards a specialisation in Communications and Networking.

Consequently, you now feel ready to assume a responsible position to reflect your experience, within a new, sophisticated real-time facility, yet retain a desire to maintain a 'hands on' involvement with both Terminals and Comms equipment.

We regard your Comms knowledge as the key factor and do not place importance on any specific hardware bias. We do however, wish to appoint an individual with the character and ability to liaise effectively with Senior Management, Users and Suppliers.

Our Comms Network will comprise of around 200 terminals utilising state of the art techniques such as the British Telecom KiloStream service to various processing centres.

To apply, contact our Advising Consultant, Ian Mason, on 021-236 8781 or at home on 021-353 5721 (7.00 - 9.00 p.m.) All applications will be received in strict confidence.

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

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International House, 84 Deansgate,  
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Avenue Louise 327,  
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020 222-640 7151/71

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Willemstraatweg 92,  
1071 H.M. Amsterdam  
010 3120-780847



# Tomorrows Software In Your Hands

## Application Software Manager To £20,000 plus Car

### WEST HERTS plus RELOCATION

With the merger of two of the U.K.'s leading retail automation manufacturers, our client is now the largest British company in the field of data capture and order entry systems. The key to their success lies in their response to the ever changing market needs by providing a "total solution" approach employing systems design, portable equipment, application software, communication systems and project management. The company specialises in the provision of systems for major manufacturers and distributors of consumer goods.

A vacancy exists for an **Application Software Manager** to play a vital role in the Company's increasing commitment to the development of an already comprehensive product range.

The primary objective will be to lead a team of designer/programmers in the design, implementation and proving of sophisticated application software for all major customers. Responsibilities will include all aspects of team management, project & resource planning and identification of new software systems for future products. The first priority will be, as always to provide the best possible service to the customer.

Applicants should possess strong managerial skills, sound commercial awareness and a broad technical background including 'hands on' design & programming ideally in the field of microelectronics. Candidates who are sales orientated, energetic and adaptable should be able to demonstrate the maturity and professionalism that a position of this importance demands.

For further information please telephone our consultant David Drake or send a detailed C.V.

**MKA SEARCH INTERNATIONAL LTD.**  
(A DUPOIT COMPUTING COMPANY)

TURRET HOUSE  
THE AVENUE  
AMERSHAM  
BUCKS. HP7 0AB  
Tel: (02943) 28866

EVENINGS  
DAVID DRAKE HOME: 0494 785208  
Offices at: Worcester (0905 612261)



SA

17701

## ANALYST PROGRAMMERS to £11,000 p.a. PROGRAMMERS to £9,000 p.a.

Due to continuing demand for their software services our client, an established software house, has an urgent requirement to recruit analyst programmers and programmers to work on a variety of commercial projects.

CICS/DL1 MINIS OTHER MAINFRAMES

We would be particularly interested in hearing from people who have any of the skills listed above and would stress that our clients can offer an excellent career path which will combine development of both technical skills and managerial and personal qualities. In addition successful candidates will enjoy the challenge of working on a wide variety of machines in different commercial environments.

Training will be offered to suitable applicants to enable them to work on software or hardware with which they are unfamiliar.

CENTRAL LONDON

For a discussion of these opportunities please phone Chris Morrow on 01-837 0451 during working hours. An information pack about our clients will be sent to interested candidates.



388 CITY ROAD LONDON EC1V 2QA

**01-837 0451**

17672

## "I never realised a register would have people searching out a job for me."

Many of them don't. But Lansdowne Appointments Register does. For instance Ray, our DP Director, will be scanning the Register every day for you on his 10-megabyte computer. Richard, Graeme, John, Sandra, Robert of our job-search force will be on the phone. Keith, our Regional Director, will be talking face to face with employers.

The minute your profile form arrives at Lansdowne all these people and more will be actively searching for vacancies that suit you.

Searching day in, day out. In just 3 days, one Lansdowne job-seeker was approached by 27 employers. That's because the brief Lansdowne profile form tells employers just what they need to know to pick you out for a job offer - but no more than that.

Over 12 years introducing job-seekers to employers we've refined and honed the questions we ask you into a lean fighting form employers welcome and use. That's why every day employers add new vacancies to Lansdowne Appointments Register in 283 different job categories.

We could have one in there for you right now. And the Lansdowne service is absolutely free to job-seekers.



**Lansdowne**  
Appointments Register

To Start Your  
Lansdowne Appointments Register,  
Park House, 207-211 The Vale,  
London W3 7QB.

Please send me a Lansdowne  
Appointments Register job-finding pack.

NAME \_\_\_\_\_  
JOB TITLE \_\_\_\_\_  
ADDRESS \_\_\_\_\_

## London & South East

### IBM COBOL and/or PL-1 £7,500 to £10,000

12 months or more experience gained in any environment to be trained in CICS and DL-1 on IBM 4300 under DOS/VSE (shirley to be upgraded to MVS). Career prospects and progression into analysis in fully online installation.

### Junior IBM Systems Programmer £9,000 to £11,500

Applications ASSEMBLER or COBOL programmer with some experience of CICS will be offered chance to move into Systems work on IBM 4300. 6-12 months exposure to CICS required with around 18 months' total experience.

### System 34 or 38 RPG £9,000 to £15,000

Want to gain valuable System 38 RPG-3 experience? We're involved in 'State of the art' System 38/IBM P.C. comms? The automated office applications areas? 1 year experience minimum!

The above positions represent only a fraction of the job opportunities on our files. If you do not see a suitable opening, please call and discuss your requirements with:  
BRUCE HARRINGTON Days: 01-630 1433  
Evenings (after 7p.m.): 01-701 5920

### DEC BASIC +, +2 £8,000 to £14,000

Move into Systems or Analysis work on PDP 11 and VAX equipment and learn Database. At least 18 months experience on any DEC hardware. All areas.

### CICS Programmers £10,000 to £17,000

All areas! Programmers with online COBOL, PL-1 or ASSEMBLER (upwards of 18 months experience) are required for positions in Manufacturing, Consultancy, Banking, Insurance and Commercial sectors, on both MVS and DMS hardware.

### RPG-2 Senior Programmer c. £11,000

A good knowledge of RPG-2 gained on any machine is required for varied mainframe environment, running fully online commercial systems. 2 years + experience required for this step towards a more responsible role.

**Lorien**  
COMPUTER SERVICES LTD.

Lorien Computer Services Ltd.,  
Recruitment Consultants, Greencoat House,  
Francis Street, London SW1P 1DH.

*We've got it!*

## PROGRAMMER

HP COBOL c.£9,500

My Client is an International Marine Insurance Company based in Central London. They currently utilise an HP 3000/44 but expansion plans mean a probable upgrade to a 3000/66 in the future. Due to the increasing workload they wish to appoint an experienced Cobol Programmer.

Applicants should have a minimum of 18 months' commercial Cobol to include nine months' HP 3000 exposure. They should also be effective communicators as there will be a considerable amount of user contact. The successful candidate can expect to work on a variety of new developments as well as existing systems with career progression assured through to Senior Programmer. The department is using the latest software tools and full training will be given where necessary.

If you are self motivated and would enjoy working in a small but vital team, contact Mike Harmer for further details.

Apex Computer Recruitment Ltd.

404 4821

59 Gray's Inn Road  
London WC1X 8TL  
Tel: 01-404 4821

## RUGBY SENIOR ANALYSTS/ PROGRAMMERS

£11,000 p.a.  
IBM 4341/2

Required to be senior members of a small team developing complete automation facilities. Desirable experience - CICS/COBOL any data base. Required characteristics - desire to use computer effectively, drive to implement good solutions to business requirements.

Generous relocation expenses.

Ring: Gary Grant or Stuart Little on:

**Rugby (0788) 74561**

or write with full career details to:



Personnel Department  
Clayton Dewandre Holdings Ltd.  
90 Newbold Road  
Rugby  
CV21 2NL

177421



# CONTRACTORS

## IBM

IBM DOS MANTIS COBOL ANALYST/PROGRAMMER  
IBM CICS SYSTEMS PROGRAMMER  
IBM DL/I SYSTEMS PROGRAMMER  
IBM IMS DB/DC COBOL PROGRAMMER  
IBM MANTIS COBOL PROGRAMMER  
IBM 4300 CDS PL/I ANALYST/PROGRAMMER  
IBM 4300 CDS MVS PL/I ANALYST/PROGRAMMER  
IBM 4300 MVS UNIVAC PL/I ANALYST/PROGRAMMER  
IBM 4300 MVS TSO FORTRAN PROGRAMMER OR PROGRAMMER/ANALYST  
IBM 4300 CDS RPG 2 ANALYST/PROGRAMMER  
IBM IMS DB/DC COBOL DATABASE ADMINISTRATOR OR DESIGNER  
IBM PL/I JSP PROGRAMMER/ANALYST + ANALYST/PROGRAMMERS  
IBM VM/CMS FORTRAN PROGRAMMERS AND ANALYST/PROGRAMMERS  
IBM JSP COBOL PROGRAMMERS  
IBM TOTAL SYSTEMS DESIGNER  
IBM MVS IMS DB SYSTEMS ANALYST  
IBM PL/I MVS IMS PROGRAMMERS  
IBM PL/I CICS DL/I PROGRAMMERS AND ANALYST/PROGRAMMER  
IBM 5120 RPO3 PROGRAMMERS WITH 5124 MVS/PS experience  
IBM MVS CICS SYSTEM PROGRAMMERS WITH ACB11  
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(1774)

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## Career profile Sloangate The Appointments Register

CW06

BACKGROUND INFORMATION PLEASE READ CAREFULLY AND PRINT IN BLOCK CAPITALS USING BLOCK LETTERS

SURNAME \_\_\_\_\_ FORENAMES \_\_\_\_\_

ADDRESS \_\_\_\_\_

TELEPHONE HOME \_\_\_\_\_

NATIONALITY \_\_\_\_\_

SCHOOL \_\_\_\_\_

EXAMS PASSED \_\_\_\_\_

UNIVERSITY ☐ COLLEGE ☐ OTHER ☐

DEGREE ☐ DIPLOMA ☐ CERTIFICATE ☐

SUBJECT(S) \_\_\_\_\_

PROFESSIONAL QUALIFICATIONS WITH DATES \_\_\_\_\_

LANGUAGES (FLUENT/SPOKEN) \_\_\_\_\_

YOUR FUTURE PLANS

DESCRIBE THE APPOINTMENT YOU NOW SEEK \_\_\_\_\_

INDICATE WHERE IN THE UK YOU WILL NOT WORK \_\_\_\_\_

WILL YOU WORK ABROAD YES ☐ NO ☐

WILL YOU TRAVEL IN THE UK YES ☐ NO ☐

COMPUTER EXPERIENCE STATE NUMBER OF YEARS EXPERIENCE IN EACH OF THE FOLLOWING

COMPUTER LANGUAGES \_\_\_\_\_

MACHINES USED \_\_\_\_\_

APPLICATIONS \_\_\_\_\_

PRESENT EMPLOYMENT

EMPLOYERS NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

JOB HELD \_\_\_\_\_

JOB RESPONSIBILITIES \_\_\_\_\_

SALARY \_\_\_\_\_

IF YOU ARE NOT A UK CITIZEN PLEASE SPECIFY DOCUMENTS STATING NUMBER WHICH ENTITLES YOU TO WORK IN THE UK \_\_\_\_\_

COMMISSIONS/BONUS \_\_\_\_\_

EMPLOYMENT HISTORY LIST LAST TWO EMPLOYERS

EMPLOYERS NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

JOB HELD \_\_\_\_\_

RESPONSIBILITIES \_\_\_\_\_

EMPLOYERS NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

JOB HELD \_\_\_\_\_

RESPONSIBILITIES \_\_\_\_\_

PROHIBITIONS LIST THE NAMES OF ANY COMPANIES WHICH YOU WOULD NOT LIKE US TO APPROACH \_\_\_\_\_

CERTIFY THAT THE ABOVE INFORMATION IS CORRECTLY ALL OUR CLIENTS ARE EQUAL OPPORTUNITY EMPLOYERS HOW DO YOU HEAR OF SLOANGATE IF BY ADVERTISEMENT \_\_\_\_\_

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Reference: GHJ/1

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Reference: GHJ/2

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Reference: WC/3

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Reference: AG/4

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Reference: AG/5

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Reference: LJ/6

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£12,000 c £13,500 to £12,000 c £11,500 £12,000 £11,000 to £14,000 to £10,000 to £10,000 to £10,500 c £10,000	IBM COBOL PROGS, DOS/VSE, CICS, prod MANTIS IBM COBOL PROGS, MVS, IMS DB/DC preferred IBM COBOL PROGS, DOS & MVS, will train in CICS/DL1 IBM COBOL A/PROG, DOS/VSE pref. CICS or APL IBM COBOL A/PROG, DOS/VSE, CICS, DL1 IBM COBOL A/PROGS, MVS, CICS/DL1 but not essential IBM COBOL PROGS & A/PROGS, MVS, CP/M exp. pref. IBM JNR COBOL PROGS, DOS/VSE training given in CICS, DL1 IBM COBOL PROGS, OS/VS1, CICS, IMS/DB useful IBM COBOL A/PROGS, MVS, CICS/DL1 but not essential IBM COBOL PROG, ADABAS & NATURAL pref.	- MIDDX - SURREY - C. LONDON - SUSSEX - C. LONDON - W. LONDON - MIDDX - SURREY - BERKS - GLOUCE - C. LONDON
to £10,000 £9,500 to £10,000 to £12,000	IBM PL1 PROG, MVS, TSO, IOMS pref. IBM PL1 PROG, DOS/VSE, CICS training given IBM PL1 PROGS, DOS/VSE, CICS, pref SHADOW IBM SNR PL1 PROG, VS1 & MVS, CICS assential, VSAM	- MIDDX - HERTS - C. LONDON - HERTS
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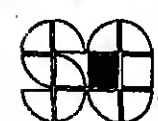
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(7780)

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We are currently committed to work in the following areas:

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Please contact Wyn Thomas on 0781 232605 or write to him with full c.v. to: Interest Computer Systems (UK) Limited, New Road, Chilcompton, Bath BA3 4JE.

(7780)

## MIDLANDS AND THE NORTH PROJECT LEADER/PROGRAMMERS

BIRMINGHAM

To £11K

We are recruiting for a major international company who require a Project Leader to be based at their headquarters in BIRMINGHAM. Experience of systems design and control of projects which are based on PDP or VAX hardware is sought and, for the right candidate a RELOCATION PACKAGE is available. This company also requires PROGRAMMERS with relevant experience.

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MIDLANDS AND NORTH

£10-£20K+ Benefits

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BIRMINGHAM

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A Midlands-based computer service bureau is currently seeking through business expansion plans which will mean doubling the present workforce. COBOL Programmers and Analyst/Programmers are required whose experience includes, hopefully, work on manufacturing systems and Data General equipment. Prospects for CAREER ADVANCEMENT are first class.

The range of opportunities we have on offer currently are located as far North as ABERDEEN down to the HOME COUNTIES. They vary from requirements for JUNIOR PROGRAMMERS to DATA PROCESSING MANAGERS. T.C.R. are always available to discuss career opportunities with D.P. staff looking to enhance their experience.

(7688)



**Targa Computer Recruitment**

18 Ropemaker Street London EC2Y 6AB  
Mongio House 61st Street Birmingham B6 7AS

Telephone 01-588 8871  
Telephone 021-622 2045

(7688)

## MIDDLE EAST/FAR EAST CONTRACT OPPORTUNITIES

### ICL ME20 SENIOR PROGRAMMERS/PROGRAMMERS

Minimum three years' COBOL experience, preferably in an IOMS environment. Self-motivated and the ability to train others are considered important. Initial six months' renewable contract. Start date: Mid-March.

### ICL IOMS DATABASE ADMINISTRATORS

Installation as above. A minimum of four years' IOMS experience essential.

### IBM DOS/VSE SYSTEMS PROGRAMMER

Minimum five years' system programming. Experience with DOS/VSE, CICS/VS essential. VM/CMS an advantage. Six months. Possibly renewable.

### IBM DOS/VSE SYSTEMS PROGRAMMER

Minimum five years' system programming experience. With at least three years' DOS/VSE. Graduate who have worked for a financial organisation will be given preference. Excellent opportunity to work independently whilst assisting our client with his recently installed IBM 4331. Initiative and the ability to train are both considered very important selection factors. One year renewable contract. Start date: A.S.A.P.

### HONEYWELL TPS0 DATABASE TECHNICIAN

Minimum three years' relevant experience. Strong Fortran background important as is previous experience with an energy related company.

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Excellent tax-free salaries, free furnished accommodation, married or single rates, full medical insurance, bonus scheme.

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In addition to our Far East/Middle East positions we have a vacancy for a Systems Programmer with a minimum five years' experience (preferably with some background OS/VS1), fluency in Assembler and Fortran essential.

The successful candidate will join our Service Contract team working for a large European-based organisation near Rome. The client provides a specialised on-line information retrieval service. Long-term employment contract. Start date: A.S.A.P.

### INTERESTED IN THE FAR EAST/MIDDLE EAST REGIONS?

We urgently require additional IBM/ICL/Honeywell experienced personnel. Ranging from Application Programmers to Project Managers. If you are interested in working for a young and ambitious company in either area, please submit your c.v. for registration and interview to:



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or  
TECNOLOGIA COMPUTER SERVICES (LTD)  
C/O 24 CONWAY STREET LONDON W1P 5HP ENGLAND

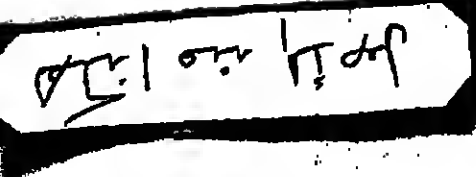
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If you are looking for a challenge within a young progressive organisation please send your career details to **SHIVON RIORDAN** or alternatively telephone her on **01-630-1433 (DAY)** or on **01-670-8717 (EVENING)**.

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To apply please send a full CV to GST's consultant Jenny Dalrymple-Hay (or Ian Murray West) at Dalroth & Partners, 4 Half Moon Street, Mayfair, London W1 or telephone for more information or an application form on 01 493 2947 8am - 10pm Monday - Friday (weekends 049 46 4579).

Ref 5041.



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(7704)

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## Network Support with Tymshare

Tymshare Network Systems, a world leader in Packet Switched Data Communications Networks, is inviting applicants for the position of Network Operations Supervisor. Duties include: Operations, Software and some Hardware Support for a number of installed data networks. Close liaison with customers will feature strongly. Applicants (28 years or older, and willing to be located within 20 miles of Wembley) should possess at least 5 years experience of Hardware and Software Support in either the DataComs or Computer industries. Academic qualifications would be an advantage. Salary is in the region of £13,000 with the use of a company car.

Vacancies also exist for Field Engineers.

CV's should be sent to: Mr M. Walker,  
Tymshare Network Systems, Station House,  
Hill Road, Wembley, Middlesex HA9 6EB.

(7647)

## Unix Programmers

The Computing Division of the Rutherford Appleton Laboratory is involved in developing Unix on several systems as well as providing a service on others. Major Unix developments are taking place on both ICL Pery single user systems and on the new GEC 63 series machine. Unix is also used on a range of systems that include PDP 11/70, VAX 11/750 and an IBM 3081.

Vacancies exist for Unix Programmers to develop and support servers, troff backends for both a colour microfilm recorder and a laser printer and both wide area network and local area network systems.

Applicants should have a degree in Computer Science or related subject and have some experience of Unix.

Depending on qualifications and experience, salaries will be within the following scales:-

Scientific Officer £5,682-£7,765  
Higher Scientific Officer £7,149-£9,561

Appointment as a Higher Scientific Officer requires a good honours degree and several years experience in this field.

Some assistance with the expenses incurred in house sale/purchase may be available.

The Laboratory is a friendly community with its own restaurant and sports facilities nearby. We offer excellent working conditions and benefits include a local transport service and generous holidays.

Contact: Recruitment Office, Personnel Group,  
Rutherford Appleton Laboratory, Science and  
Engineering Research Council, Chilton, Didcot, Oxon  
OX11 0QX, or telephone Abingdon (0235) 445435,  
quoting reference VN204.

Closing date for applications: 1st March 1984

(7686)

**serc** Rutherford Appleton  
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## HONEYWELL PROGRAMMER NEW POSITION - NEW SYSTEM DPS 7 COMPUTER

## MEDICAL INSURANCE AGENCY - MAJOR INSURANCE BROKERS

We are looking for an ambitious programmer to join our computer team who are developing a new database client accounting and information system. You should have up to two years' experience on Honeywell equipment ideally on L64 or DPS 7 hardware, using GCOS, COBOL, IDS2 and TDS. You will join a small team where everyone gets involved, so personality as well as the skills you can offer is important.

This could well be your first job move - in the RIGHT DIRECTION! INTERESTED? Ring or write to: Peter Barnes, Medical Insurance Agency Ltd., B.M.A. House, Tavistock Square, London WC1H 9JD. Day 01-388 1301. Evening (7-9 pm) 0727 57641.

(7671)

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You'll need to be an experienced Systems Analyst - at least 3 years, including proven business systems experience - to produce functional and systems specifications.

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# CONTRACTS

## IBM

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VM SYSTEMS PROGRAMMER

MVS SYSTEMS PROGRAMMER

MVS/JES 3 SYSTEMS PROGRAMMER

CMS ORDER PROCESSING ANALYST

CICS, OL/I INDUSTRIAL APPLICATIONS ANALYST

OOS/VSE, CICS, OL/I COBOL ANALYST

MANTIS PROGRAMMER (PL/I OR ASSEMBLER)

MVS IMS/DB COBOL PROGS. (MARCH/APRIL)

370 ISO COBOL PROGRAMMER

SYSTEM 34, RPG II ANALYST/PROGRAMMER

VM, OOS/VSE COBOL PROGRAMMERS (APRIL)

CICS, ASSEMBLER PROGRAMMER (IMMEDIATE START)

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## ICL

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SYSTEM 25 ASSEMBLER ANALYST/PROGRAMMERS

SYSTEM 25 IS COBOL PROGRAMMER

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2900 VME COBOL IDMS, TPMS PROGRAMMERS

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HP3000 ANALYSTS

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For details of these and other on-going requirements, please contact Lorraine, Lynne, Wendy or Tony at KPG, or contact Lorraine on Welton-on-Thames 245552 (evenings and weekends).

*Handwritten note:* 01-948 5922

**KPG**  
01-948 5922

KPG Computer Support Services Limited  
Cobden House, Park Lane, Richmond, Surrey, TW9 2RA



(7714)

UNIVERSITY OF LIVERPOOL  
Department of Computer Science

## EXPERIMENTAL OFFICER

To join small team which provides software and hardware support for teaching and research. Experience of local area networks, assembly language programming, UNIX, Algol 68, or Pascal particularly welcome.

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Application forms may be obtained from the Registrar, the University, P.O. Box 142, Liverpool L69 2GB. Closing date: 15/2/84.

London Borough of Ealing

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Required to join a team of two other programmers in providing a range of services to 'academic and administrative users. The centre provides an interactive computing service on Prime 750/850 as well as facilities on BBC and North Star micro computers.

Applicants should have a relevant degree and at least two years' practical experience, and preferably a good working knowledge of statistics.

Please quote reference E3088  
Closing date: 17/2/84

Application forms and further details from the Chief Administrative Officer (ID/100), Ealing College, St. Mary's Road, London W5 8NF. Telephone: 01-879 4111.

(7647)

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The introduction of the IBM PC and exclusive distributorships for key IBM PC enhancement products is supported by a highly qualified team of technicians and engineers.

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A workshop based, Microcomputer Technician, with at least three years component level repair experience of Micros and peripherals, a knowledge of TTL logic and both floppy and hard disk technology will also be required to supplement a highly skilled team of microcomputer technicians.

Salary will be no obstacle to the right Candidates, and on offer is an excellent benefits package with excellent career prospects in a rapidly expanding environment.

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Queensway, Birmingham B3 3JY  
021-236 3781

**NORTH**  
International House, 84 Osmaston,  
Manchester M3 2ER  
061-833 0427

**BELGIUM**  
Avenue Louise 327,  
Boite 4, 1050 Bruxelles  
010322-640 7151/71

**HOLLAND**  
Willemshavenweg 92,  
1077 H.M. Amsterdam  
0103120-769447

## SELECT YOUR NEXT CAREER MOVE

### CENTRAL LONDON £11,000-£13,000 ANALYST/PROGRAMMERS PROGRAMMERS

**COBOL/CICS/DLI - Training**  
A leading IBM User based at a very accessible Central London site is seeking to recruit programme and analyst/programmers for their IBM 4300 MVS installation. The company are currently developing a range of new financial systems using CICS and DLI and can offer excellent career development opportunities. Excellent benefits include a subsidised mortgage and a non-contributory pension. Ref W1

### UXBRIDGE/WEST MIDDLESEX £10,000-£12,000 NEW IBM COBOL PROJECTS

Our client very conveniently situated near the A40/M40 in West Middlesex is seeking to recruit PROGRAMMERS and PROGRAMMER/ANALYSTS to work on the development of commercial on-line database systems on IBM MVS hardware. Training in on-line database techniques is available and candidates will need to offer at least two years' IBM COBOL. In addition to an excellent commencing salary the company are also able to offer an attractive range of employee benefits. Ref W4

### BRACKNELL, BERKSHIRE TO £12,000 SYSTEMS ANALYSTS COBOL PROGRAMMERS

Located in Bracknell, very accessible from the M3 and M4, our client, a large IBM user, is seeking staff to be engaged on a wide range of new CICS/DLI based commercial projects. Programmers will need to offer at least two years' IBM COBOL, with training in CICS/DLI available, and analysts should be capable of taking a project through all stages of development. Ref W7

If you wish to apply for any of the above positions telephone or write now quoting the appropriate reference. DP Selection Services service clients in London and the surrounding counties. If you wish to discuss your career move requirements telephone one of our consultants for a confidential discussion.

**dp SELECTION SERVICES**  
A member of the DP Support Services Group

### HAMPSHIRE £10,000-£13,000 (+ Benefits) COBOL ANALYST/PROGRAMMERS

Several exciting career opportunities exist within this rapidly expanding IBM 4341 MVS environment where a new project development schedule has recently been agreed. If you can offer at least two years' IBM COBOL then training in CICS/DLI and MVS will be provided together with company benefits including low cost finance, a mortgage subsidy and a very attractive relocation package. Ref W2

### SOUTH HERTFORDSHIRE £9,000-£13,000 PL/I PROGRAMMERS ANALYST/PROGRAMMERS

PL/I CICS and database projects are currently being developed by a major financial organisation using IBM MVS mainframes. You will need to offer at least two years' PL/I experience in a commercial environment and the company can offer training to develop your technical and analytical skills. An excellent range of employee benefits are available including non-contributory pension and a subsidised restaurant. Ref W6

### CITY OF LONDON TO £12,000 RPGII - SYSTEM 38 - BANKING

A major international bank located in the City is seeking to recruit programmers for their System 38 installation. Candidates should offer at least eighteen months' programming experience with RPGII training available for RPGII programmers. You should be capable of progression to a programmer-analyst role and an excellent Bank Benefits package will be offered including a preferential mortgage. Ref W8

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### CITY/CENTRAL LONDON TO £14,000 PROGRAMMERS & PROGRAMMER/ANALYSTS

**TANDEM - DEC VAX**  
If you can offer experience of systems and programming on TANDEM & DEC hardware, our client, a highly respected organisation developing new commercial and communications systems, can offer you challenging new project work. You will need to offer TANDEM TAL experience or DEC VAX ASSEMBLER and can look forward to receiving training to enhance your technical skills. Career development to system designer level exists and the company offer a range of attractive benefits. Ref W3

### KINGSTON, SURREY £11,000-£13,000 SYSTEMS ANALYSTS

Our client, a very successful IBM User developing systems for the insurance market, now wish to recruit SYSTEMS ANALYSTS to take responsibility for new commercial/financial projects. These systems will utilise on-line and database software and therefore experience in these areas will be a great asset. If you are seeking a new challenge in system development with a progressive, lively company then our client can offer you an excellent career opportunity. Ref W6

### CITY TO £10,000 ANALYSTS - FINANCIAL/BANKING PROJECTS

A large financial institution based in the City is about to embark on a wide ranging development of systems for the Financial sector. (Senior) Systems Analysts are now sought to take project responsibility for systems which will require extensive user group liaison. Candidates must offer several years' systems experience preferably including IBM knowledge and will be capable of project leading. Ref W9

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## PROGRAMMER c.£9,000

Derwent Publications, a company at the forefront of scientific and patents information services and with a world-wide clientele, have a vacancy for an enthusiastic and innovative young programmer.

The successful candidate will be of at least 'A' level standard with about four years' commercial experience (or a graduate with two years' experience) of IBM/COBOL with MVS and TSO/SPF. Tasks will include assisting in the development of new project work, maintenance and support of existing applications and considerable liaison with external bureaux.

A competitive starting salary (neg. e.e.e.) will be paid and there is a range of other benefits. Career prospects are good in an expanding and increasingly important department of a flourishing business.

Write with full c.v. to:

Mr V. Lyon  
Personnel Director  
Derwent Publications Ltd  
Rochdale House  
128 Theobalds Road  
LONDON WC1X 8RP



### CALEDONIAN MACBRAYNE LTD.

## SYSTEMS ANALYST ANALYST PROGRAMMER PROGRAMMERS HP3000

LOCATION: GOUROCK SALARY: c.£7,500-10,000

Caledonian MacBrayne Ltd, which is part of the Scottish Transport Group, operates all major ferry services in the Clyde and Western Isles and has its Head Office based at Gourock.

Following upon a decision by the Group to decentralise its computer facilities the Company are now in the process of installing Hewlett Packard HP3000 computers. Applications developed will make use of the latest software development aids - IMAGE, TRANACT and INFORM with programmes written in COBOL. Additionally Micro computers are being introduced and we plan to extend their use.

The Company is therefore seeking experienced and enthusiastic staff to form a new Computer Department of Gourock to undertake development of existing and new applications.

These new positions represent an opportunity to join an exciting phase of computer development. Applications are invited from experienced staff. Ideally, candidates should have an HP3000 background with COBOL experience but suitable training will be given as necessary.

Applications in strict confidence should be submitted giving details of experience, salary, etc. to:-

A. Douglas Esq.  
Manpower Executive,  
Scottish Transport Group,  
Cotton House, 114/118 George Street,  
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### EPOS SYSTEMS

We currently require five experienced Analyst/Project Leaders for major EPOS development projects. Career prospects are excellent.



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The successful candidate will have many years of experience in the UK scientific/technical market, both OEM and user, and is expected to hold a senior sales management position in his current company.

Compensation package and equity position will be commensurate with the importance of the assignment.

Please send your resume to:

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TARWEKKER 10 3941 L.B. DOORN, HOLLAND  
or call MR. HANS B. TEENMAN on 31 3430 14046

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We are seeking an accomplished systems specialist, with a substantial record in project control and man management, who is truly conversant with IBM operating and database software, particularly VM/CMS. A high level of diagnostic skill is also essential.

The chosen candidate will be given the task of building a team of software specialists to trouble shoot at the implementation and operation levels and to support and train end-users. He/she will also be responsible for establishing a centre of excellence for IBM systems software support. The job will command national responsibility but will be located in the

## HOME COUNTIES

It is expected that the first two months will be taken up with comprehensive

## PRODUCT TRAINING IN THE U.S.A.

In order to be able to advise the company on its technical support strategy in anticipation of the new product launch in the spring.

This is a significant and senior appointment reporting directly to the head of Customer Services, and will attract a substantial remuneration package that is commensurate with the importance of this key appointment.

**Money will not be allowed to get in the way of recruiting the right person for this job.**

Please supply complete career details to Alex Middlemass (London) or Alan Williams (Lichfield) quoting reference MTB/024.

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### DEC Engineers S. Africa Excellent Benefits

If you happen to be one of the DEC engineers that we are looking for, you could be alongside a crystal clear pool with a beer in your hand, or maybe indulging in your favourite outdoor week-end activity. These are just some of the perks that we, the leading supplier of DEC systems in South Africa can offer you.

You should have had at least 3 years hardware support experience on DEC 11, 70, VAX 750 and VAX 780 range of CPUs, have peripheral qualifications consistent with regional support capabilities and be prepared to enter a two year agreement or alternatively be

considering permanent residence in South Africa.

We are a well established international organisation who, in exchange for your qualifications, can offer a £15,000 p.a. package, benefits which include excellent career prospects, job satisfaction, excellent pension fund, medical aid and car scheme, a renewable contract or permanent post, return air fares and relocation allowance as well as initial accommodation.

If you would like to consider a move to sunny South Africa, in the first instance, telephone or write for an appointment to our consultant.

with details of your career to date, including any companies that you would not wish to approach. Interviews will take place in London on February 6th, 7th and 8th. Christopher Gill, JWG Advertising, 26 Wellington Street, London WC2E 4BB. Tel: 01-836 3932.



JWG Advertising Limited



# RANK XEROX

Make our International Data Centre part of  
your career.

## Systems Programmers to £15,000

To build, develop, technically maintain and modify as required, software systems in support of Data Centres throughout Europe. 3 years' IBM systems programming experience is required with extensive MVS involvement and one or more of the following: TSO, JES3, ROSCOE, IMS, ACFVTAM, RACF. Ref: 44185/CW.

## System and Software Consultants to £15,000

These consultancy support roles provide a technical guidance and problem solving capacity to domestic and international users of the full range of IBM software products. The required experience is at least 2 years' OS and Assembler and a working knowledge of some of the following: MVS/SP, TSO, ISPF, FOCUS, JES3, RACF, ROSCOE, IMS DB/DC, ACFVTAM, DATAMANAGER, EASTRIVE. Ref: 44186/CW.

## IBM SYSTEMS SOFTWARE AND SUPPORT up to £15,000, North London

Rank Xerox Ltd is the undisputed market leader in copiers and duplicators, whose products and business systems incorporate state of the art technology. Internationally successful, with turnover in excess of £1.3 billion and profits over £100 million, it is a subsidiary of the US\$9 billion Xerox Corporation.

The International Data Centre in Bushey provides software systems support and development, batch and on-line processing and voice and message telecommunications facilities for operating divisions and subsidiaries. The network is substantial, extending throughout the UK and Europe, to Africa, the Far East, Australasia and the USA. IBM mainframes, including a new 3083, operate under MVS/JES3.

This is part of a major exercise to attract talented people looking for career development, security, extensive training and managerial prospects. Salaries and positions are just an indication of the areas and levels required. If you are an IBM specialist and believe you have experience and ability suitable for the company, we would like to hear from you.

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Ref: 44186/CW, BIRMINGHAM, CARDIFF, GLASGOW, LEEDS, LONDON, MANCHESTER, NEWCASTLE and SHEFFIELD

## We are easy to get to

Bushey benefits from first class road and rail links. The surrounding area offers a wide variety of housing accommodation, with excellent shopping, sports and recreational facilities.

## How to apply

Candidates should submit their CV, quoting the appropriate reference number, or complete and return the reply box or telephone for an application form to: A.D. Kelly, Hoggett Bowers & Partners, Sutherland House, 5/6 Argyll Street, London W1E 6EZ. Tel 01-734 6852. LOCAL INTERVIEWS WILL BE ARRANGED.

NAME	REF No
ADDRESS	

## SOUTHWARK MICROTECH A MICROTECHNOLOGY TRAINING CENTRE

Southwark Council, plus a local charity and an international telecommunications organisation, are jointly sponsoring an MSC/CCI-funded Information Technology Centre (ITIC) which provides up to a year's training in the use and servicing of computers and related technology for 16- to 19-year-olds. The ITIC will equip them with the necessary skills to get related employment and help them to keep it.

We are among the first centres of their kind and these opportunities provide an exceptional challenge. In order to help us maintain and promote this service and develop our team we need:

## INSTRUCTOR £8,382 to £9,087 (Scale 5)

You must be able to provide specialist training in the following areas: Software packages, programming and the operation of micro-computers.

The successful candidate will be required to motivate, assess and monitor the progress of young people of varying abilities in the use of Information Technology.

A sympathetic approach to young people and their problems is therefore essential.

This is a most demanding role which calls for considerable personal commitment and dedication; however, it can also be most rewarding to the right candidate. If you think you can handle it please contact Lesley Laitson on 01-928 8434 or write to:

Southwark Microtech  
182/194 Union Street  
London SE1 0LH

Last date for receipt of completed Application Forms: 24.2.84.

## Harrogate Borough Council COMPUTER SERVICES OFFICER

Salary £12,408 to £13,728 per annum

The Council wish to engage, for this new post, the services of an enthusiastic data processing professional to assist in the formulation of the future strategy of the computer function, to investigate and evaluate the options and to co-ordinate the development and implementation of procedural information and control systems across all areas of the Authority.

Existing facilities include an ICL ME29, a range of local terminals (which is scheduled to be extensively expanded) and distributed computerised cash recycling facilities. In addition to which extensive use is made of the County Council's twin 2978 mainframe.

Applications are invited from persons with relevant qualifications (additional BCS or IDPM an advantage). Experience in telecommunications and related technologies desirable and a knowledge of ICL distributed systems and experience in Local Government would be advantageous. Assistance with resettlement expenses in appropriate cases and temporary housing accommodation may be available.

Application forms and further details are available from the Personnel Officer, Harrogate Borough Council, Council Offices, Harrogate, North Yorkshire HG1 2SG. Tel: (0423) 68844 ext. 205. Closing date 24th February, 1984.

## TRENT POLYTECHNIC COMPUTING SERVICES

## CHIEF SYSTEMS PROGRAMMER (£10,761-£12,087)

To lead a team of four responsible for the smooth running of systems software on the central Polytechnic computers (DEC 2060, VAX and IBM System 360). Experience in system programming, low-level languages or communication networks, etc., would be advantageous.

Further details and form of application are available from the Staff Officer, Trent Polytechnic, Bunton Street, Nottingham N1 4BU. Closing date February 24, 1984.

## Hardware Instructor £10,000+

Nixdorf Computer, a world leader in computer systems and services, seeks a hardware instructor with the flair and imagination to run a new UK training operation for engineers.

This is a position requiring experience in a similar field as well as the ability to use initiative in developing the role accordingly.

The successful applicant will be based at Nixdorf's Hounslow headquarters and will receive upwards of £10,000 depending on relevant experience, plus the range of benefits associated with a major international organisation.

## Application Software Instructor

Nixdorf Computer also has a vacancy for an able lecturer in computer studies who wishes to broaden his or her experience by joining a progressive manufacturer.

Teaching our wide variety of customers to use our comprehensive range of application software requires many qualities. Nixdorf offers an attractive remuneration package to someone with:

- A good understanding of business accounting
- Systems analysis and training experience
- The personality to establish good relationships quickly

Candidates with the ability and personality to fill these demanding posts should apply in writing with CV to: Mr G Willis, Nixdorf Computer, 125-135 Staines Road, Hounslow, Middlesex TW3 3UB.

**NIXDORF  
COMPUTER**

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# PUBLIC SECTOR APPOINTMENTS

## SCOTTISH WEST COAST HEALTH BOARDS

### (a) Chief Computer Operator

£8,387-£10,277 per annum (after a qualifying period an annual allowance of £554 may be payable).

This senior post requires candidates with several years' experience of working at a supervisory level in a medium to large computer installation preferably with ICL 1900 or 2900 systems, utilising the George 3 or VME 2900 operating systems. A knowledge of telecommunications networks would be an advantage.

### (b) Intermediate Programmer

£7,404-£9,025 per annum (after a qualifying period an annual allowance of £277 may be payable).

At least two years' relevant experience is required for this post. Experience of ICL COBOL and familiarity with the use of ICL software is essential. Knowledge of George 3 and/or VME 2900 would be an advantage.

Both posts are based in modern offices near the centre of Paisley, minutes from the motorway and mainline railway stations. The ICL 1903 computer system currently in operation is in the process of being replaced by an ICL 2906 system, providing concurrent use of VME 2900 and George 3 operating systems.

The Department services the Argyll and Clyde, Argyll and Arran, Dumfries and Galloway and Western Isles Health Boards in providing a wide range of financial services and as an integral part of the Information Services Division processes a comprehensive range of information for Health Care, planning and management. The Health Board have a number of mini computers in Hospital Laboratories and administration and an expanding data communications network.

Application forms and further particulars regarding above posts may be obtained from the Area Personnel Officer, Argyll and Clyde Health Board, Gilmour House, Paisley PA1 10U (telephone: 041-907 0121, extension 322) to whom completed applications should be returned not later than February 24, 1984.

## THE UNIVERSITY OF SIRMINGHAM

### Administrative Data Processing Unit

The following staff are required:

### DEPUTY DATA PROCESSING MANAGER

(£13,516-£16,926)

A high calibre professional to lead the payroll/personnel project group and to have overall responsibility for the co-ordination of developments within the unit. Wide experience of all aspects of data processing essential.

### SENIOR SYSTEMS ANALYST

(£11,160-£14,125)

A Senior Systems Analyst to head developments in the student admissions and records area. A detailed knowledge of current on-line techniques is expected; previous experience in personnel record systems an advantage.

### SYSTEMS ANALYST/PROGRAMMER

(£7,190-£11,915)

A well-qualified Systems Analyst/Programmer to improve cost control systems in the estates and buildings office. Minimum of two years' programming preferably Cobol or Transact and 12 months' systems analysis experience essential.

### PROGRAMMERS

(£6,310-£9,575)

Additional Programmers are required, each normally to work within a specified project area. Minimum of 12 months' programming experience, preferably in Cobol, required.

Salary is subject to review in April.

Familiarity with HP equipment an advantage. Enquiries to Mr. A. Todd, Data Processing Manager (Tel. 021-472 1201, Ext. 3162). Further particulars and application forms, returnable by February 29, are available from the Senior Assistant Secretary, University of Birmingham, PO Box 363, B15 2TT.

## MICROELECTRONICS EDUCATION PROGRAMME MERSEYSIDE WITH CHESHIRE REGION REGIONAL INFORMATION CENTRE

### DEPUTY DIRECTOR

Salary scale Lecturer II/8 Senior Lecturer £7,215-£13,443 p.a.

A temporary post, funded by the MEP, for the period April 1, 1984 to March 31, 1986.

This is a newly-created post with a particular responsibility to ensure a sound procedure for the gathering and dissemination of information on all aspects of microelectronics education within the region. It is hoped that the post can be filled from May 1, 1984 or earlier if possible.

Applicants are advised to consult their present employing authority with a view to securing secondment. Further particulars and application forms can be obtained from The Teacher Development Section, Education Office, 14 Bir Thomas Street, Liverpool L1 6SL. Applications must be returned to the above address by February 20, 1984.

The City Council is an Equal Opportunity Employer and welcomes applications irrespective of race, sex, marital status or disability.

## Analyst/Programmer £7,818-£11,166 pa inc. London, N11

A challenging opportunity exists within the Academic Computing Service at Middlesex Polytechnic's Academic Computing Service.

Staff and students use an increasing variety of applications packages by means of a network based on DEC System-10 and Prime-550 systems and large numbers of microcomputers.

Responsibilities involve the implementation and maintenance of software in these applications areas: Statistical and Survey Analysis; Simulation and Modelling; CAI/CAJ and Information Systems.

A degree in a numerate discipline is expected, together with at least three years' computing experience including use of micro operating systems, system design, Fortran and at least one other high-level language, documentation writing and user liaison.

Write quoting ref N132 for further information and an application form, posting first class to: Personnel Office, Middlesex Polytechnic, 14 Chase Side, London N14 6PN. Closing date: February 20.

Middlesex Polytechnic

## BRISTOL POLYTECHNIC Construction & Environmental Health Department

### Part-time Research Assistant - Cost and Resource Modelling - Ref No R/173

A Research Assistant is required to assist in the development of computerised time cost models for multi-skill projects in the construction industry with major resource constraints on a 2 1/2-day per week basis, until the end of August, 1984.

The post would be suitable for graduates in Mathematics, Computing, Building Technology or Civil Engineering. The ability to write computer software suitable for industrial/professional applications is essential. Previous research experience is desirable, but not essential.

SALARY SCALE: pro rata to £5,418-£6,123 per annum.

For further details and an application form, to be returned by 17th February, 1984, please contact the Personnel Office, Bristol Polytechnic, Coldharbour Lane, Frenchay, Bristol or Ring Bristol 659261, Ext 219 or 217.

Please quote Ref No R/173 in all communications (7763)

## LOUGHBOROUGH UNIVERSITY OF TECHNOLOGY ROBOTIC PROGRAMMING

Applications are invited for the post of RESEARCH ASSISTANT to work on an SERC-funded project in off-line robotic programming.

Candidates should be good honours graduates, preferably with some industrial experience. The appointee may be able to register for a higher degree.

The appointment will be for two years in the first instance at a starting salary of £6,745. Application forms and further details from John Middle, Department of Engineering Production, Loughborough, Leicestershire (7768)

## LIVERPOOL HEALTH AUTHORITY ANALYST PROGRAMMER (STATISTICS)

(£8,970 to £7,404 per annum)

An enthusiastic, suitably qualified person is sought for this important post in the Authority's Information Unit. The postholder will be responsible for setting up a computerised statistical database together with an associated library programme. Further work will involve the development of planning-oriented applications for the computer, information systems and research.

Application form and job description available from the District Personnel Officer, Liverpool Health Authority, Ormeau House, Edmund Street, Liverpool L3 5NA. (Telephone 051-227 4300 ext 297). CLOSING DATE: 15th MARCH, 1984. (7771)

## IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY SYSTEMS ANALYST/PROGRAMMER (Administrative Computing)

Systems analyst/programmer required to assist the Administrative Computing Development Officer in the design and development of selected part of a fully integrated administrative computing system. The initial task will be to assist at the definition stage of a project on Registry computerisation followed by the design, program and test of portions of the system.

Proven success in the development of structured, fully documented software is necessary and experience in data base design and usage desirable. The ability to co-operate closely with Registry staff and to translate their operational requirements into user-friendly software is very important.

Initial appointment will be for 5 years. Salary in range £5,310-£11,815 per annum plus £1,198 London Allowance according to qualifications and experience.

Further particulars and application forms are available from the Personnel Secretary (Tel: 0203 8111 ext 2083) Imperial College, London SW7 2BZ. Closing date for receipt of applications - Friday 2 March 1984. (7743)

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## FOR PROGRAMMERS OPPORTUNITIES IN COMMUNICATIONS £9-£13.5K Camberley, Surrey

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Opportunities have arisen for a Senior Programmer and Programmer to become involved in the development of exciting new communications products. Those seeking real responsibility will see projects through from feasibility to implementation and have the opportunity to provide some sales support to customers.

Working in a small, friendly and informal environment will ensure that endeavour and application are instantly recognised and subsequently rewarded.

Experience of communications software development is essential for the more senior position. Successful applicants will have:

- Experience of Assembler languages, preferably DEC MACRO 11.
- Minimum of 2 years software development.
- High level of motivation.

Company benefits include regular salary reviews, excellent career prospects, free family medical insurance, generous pension scheme and relocation assistance where appropriate.

For further details please telephone Keith Taylor on Reading (0734) 595548 or write enclosing full c.v. to our Reading Office.

Interviews will be held in London and Reading.

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London W1R 6FA  
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# PUBLIC SECTOR GLC

Working for London

## Computer systems and traffic control applications

The operations of Greater London's urban traffic network is continuously being reviewed and updated, using TRANSYT and SCOOT adaptive control where appropriate. This priority at signals, measures to assist pedestrian, and automatic, reporting of signal faults are currently being introduced and a new central computing facility supporting all signal control, monitoring and operating functions is underway, involving VAX and PLIP mainframes, a local area network, and many software developments.

To meet the increasing emphasis on this work, we wish to appoint two senior managers:

### Head of Systems & Software Traffic Control Applications Manager

To take responsibility for the effectiveness of these measures, in traffic terms, and for the development of the necessary control systems.

Applicants should have a Chartered Engineer's equivalent and at least 8 years' experience in the management of on-line computer control systems of traffic control engineering.

Salaries: £15,096-£16,776 inclusive.

For an application form, to be received by 17th February 1984, apply to: Transport & Roadways Department, Traffic Section, London (Contact Room 34th, The County Hall, St. 1, 7th Floor, telephone: 01 632 7791).

These posts are suitable for job sharing.

The GLC welcomes applications from all sections of the community, irrespective of race, ethnic origin, colour, sexual orientation or disability, if they have the necessary attributes to do the job.

The GLC is an equal opportunities employer.

### Waltham Forest College

## Principal Lecturer in Computing

The post of Principal Lecturer responsible for the leadership and development of the Computer Unit is tenable from 30 April 1984.

Salary - £13,164-£16,389 per annum inclusive.

Application forms and further details available from the College Personnel Services Officer, Waltham Forest College, Forest Road, Walthamstow, London E17 4JB.

Tel. No. 01-527 2311 Ext. 259

Closing date 21 days from appearance of advertisement.



### ABERDEEN UNIVERSITY COMPUTING SERVICES LTD. (AUCS) Applications are invited for a newly created

## PROGRAMMING POST

AUCS services include software development, software revision, and consultancy, with a considerable involvement in database software and applications. AUCS works closely with the University Computing Centre, whose hardware includes a state-of-the-art IBM/AS/400 level 85 and various microcomputers. Languages used include FORTRAN, COBOL, and database development languages.

Applicants must have programming experience and the ability to adapt quickly to a wide variety of work. Desirable qualifications include a postgraduate or higher degree and relevant experience.

Appointments will be for three years with the possibility of extension. Salary will be in the University pay scale £12,000-£15,151. Enquiries should be addressed to Stephen Gordon, AUCS, 125 East Street, Aberdeen AB9 1SB (phone 0224 62261, ext. 5100), to whom applications should be sent by February 27, 1984.

## BOX NUMBERS

Box number replies should be addressed to:

Box Number .....

c/o Computer Weekly  
Quadrant House, The Quadrant  
Sutton, Surrey SM2 6AS

### GREATER GLASGOW HEALTH BOARD

## A. SENIOR SYSTEMS DESIGNER/PROJECT LEADER

£9,404-£11,434 PER ANNUM

## B. SYSTEMS DESIGNER

£9,367-£10,777 PER ANNUM

Applications are invited for the above posts in the board's computer centre which is located at 225 Bath Street, Glasgow. The centre is equipped with an ICL 2968 computer and processes a wide range of applications for the Health Service. Both posts are for the Scottish standard immunisation recall system.

The successful candidate for post A, will be responsible for the project team development of the system and will therefore require considerable experience in compiling and proven ability to design and install complex systems. Programming experience is desirable while knowledge and experience of the National Health Service would be advantageous.

Candidates for post B should have had relevant experience and a good educational background.

Additional allowances may be payable for relevant experience.

Application forms and job descriptions may be obtained from the Area Personnel Officer, Greater Glasgow Health Board, 225 Bath Street, Glasgow G2 4JT (Tel. No. 041-294 2755, ext. 2600) to whom completed forms should be returned not later than Friday, March 2, 1984.

Please apply clearly, for which post you wish to apply.

ELLA THOMSON  
REX STEWART & ASSOCIATES  
DIRECT LINE 041-294 1776  
776884 REX/ASO

# SMR

## Sales & Marketing Recruiters Ltd

Leaders in High Technology Recruitment

## MICROCOMPUTERS SALES AND SALES SUPPORT

### THIS COULD BE THE START OF SOMETHING BIG!

Probably the most sought after job opportunities as far as accomplished and ambitious salespeople are concerned is the chance to join a major foreign company with an outstanding product range who is just setting-up in the U.K. The implications of the 'ground floor opportunity' are obvious. However it is not very often that such a situation occurs involving a multi-national company with revenues in excess of £500 millions and employing over 25,000 people worldwide!

So determined is our client to succeed, that the investment in U.K. manufacturing facilities has trebled within the last two years. Early success has already been achieved and the product/quality performance may be judged by its rapid revenue growth.

This company is about to launch a powerful range of home and business microcomputers with performance and prices that will amaze you, supported by application packages and a comprehensive range of languages, system utilities and operating software.

Requirements now exist

## THROUGHOUT THE U.K.

## AREA SALES MANAGERS

Candidates should be directly experienced and successful salespeople who are currently selling microcomputers to Dealers, Distributors, Specialist Computer Retailers, Major End-Users, etc. They will be self-motivated and industrious individuals, able to create and implement sales strategy and manage a small team of sales and technical support people. An attractive compensation package will be offered including a guarantee against commission earnings and a company car is provided. Territories are available throughout the U.K.

## SALES SUPPORT ANALYSTS

Candidates should have substantial experience of either the business or home microcomputer market and able to handle the technical requirements of distributors, retailers and large-scale end-users. Knowledge of CPM and BASIC is essential and fluency in commercial applications will be advantageous. Opportunities exist throughout the U.K., an attractive salary will be paid and a company car is provided.

## SALES TRAINEES

These opportunities will appeal to those young people with obvious flair for selling who have significant experience of utilising microcomputers or are already involved in marketing or merchandising to distributors, retailers, etc. The job entails the provision of sales and marketing support, including the operation of varied promotional campaigns to a wide selection of clients and reports to the local Area Sales Manager. Opportunities exist throughout the U.K., an attractive salary will be paid and a company car is provided.

All these excellent job opportunities carry considerable fringe benefits, a company pension, but above all they offer considerable potential for job satisfaction, high earnings and career advancement.

Please provide complete career details to Roger Dodd (Midlands and North) and Lindsay Howie (South) quoting reference SDB/024.

### LONDON & SOUTH

29 Oxford Street,  
London W1. (01) 734 9776

### MIDLANDS & NORTH

Cathedral House, Beacon Street,  
Lichfield, Staffs. (05432) 56612

Answering Service after 6 pm and weekends  
SALES TRAINING, MARKET RESEARCH, RECRUITMENT

# SMR

## Sales & Marketing Recruiters Ltd

Leaders in High Technology Recruitment

## SALES EXECUTIVES COMPUTER AIDED ENGINEERING HARDWARE & SOFTWARE SYSTEMS

It's nice to have the opportunity of satisfying the recruitment needs of a fast growing international organisation whose name is a by-word for innovation and product integrity, a reputation that is synonymous with all that is excellent in technological progress, a name that implies instant credibility. Such is our client, a company with manufacturing capabilities that extend from computer systems to micro-chips and more particularly, very special skills in the provision of integrated CAD/CAM systems (CAE if you prefer it!).

The last 3 months have been the most successful in the company's history and continuing growth has now created the need for additional salespeople to sell Computer Aided Engineering Systems to mechanical engineering and manufacturing organisations throughout

## MIDLANDS & NORTH SOUTHERN ENGLAND

Candidates are likely to be currently employed in selling CAD/CAM systems for a recognised major supplier or involved in the provision of engineering related computer services, preferably with an engineering qualification. Sales targets are relatively low for this sector of the market place and anticipated on target earnings will be

## £32,000 + COMPANY CAR

Please contact Alasdair Scott (London), or Roger Dodd (Lichfield), quoting reference SSA/024.

This job is available to both men and women.

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Answering Service after 6 pm and weekends  
SALES TRAINING, MARKET RESEARCH, RECRUITMENT

### MIDLANDS & NORTH

Cathedral House, Beacon Street,  
Lichfield, Staffs. (05432) 56612

## Minicomputer Operator

### ...with Systems Analysis ability Manchester

This interesting job at Wilson's Brewery demands a competent and intelligent computer operator with the ability to progress quickly towards the analysis, design and implementation of micro based projects. We currently use Data General Eclipse and Nova minicomputers and a range of IBM and Apple microcomputers.

Aged around 25 you should have a good academic background (degree/National Diploma) and sound training in Management Services, Systems Analysis or programming.

A two shift system is being worked - for which a shift premium is paid.

An attractive salary is offered together with a discretionary bonus and the usual benefits associated with a progressive company.

Write with full career and salary details to: Mr J.E. Dale, Senior Personnel Officer, Wilson's Brewery Limited, Mossall Road, Newton Heath, Manchester M10 6PA.

Chr. Michelsen Institute is an independent multi-disciplinary research institute which serves industry and society in Norway and abroad. The work of the Institute is financed by means of government grants and by R & D Contracts.

CMI's dept of science and technology has a staff of 105, most of whom are graduate scientists or engineers.

## COMPUTER GRAPHICS/ANIMATION

Applications are invited from highly qualified and suitably experienced persons for a position in computer graphics and animation. Applications with a Ph.D or M.Sc in computer science will be preferred.

Research activities in the dept of science and technology are concentrated in the following areas:

- Powder technology, dust and gas explosions
- Instrumentation and measurement technology
- Remote sensing and image processing
- Signal processing, including seismic interpretation
- Mechanical design and precision engineering
- Electronics design

Many of our projects in these fields utilise computers for simulation, data reduction, and design purposes. In order to enhance our ability to interpret and understand computer output, we plan to expand our use of computer graphics and animation techniques. Further details of this challenging appointment can be obtained from Heakon Helland at CMI. Deadline for applications is February 20, 1984.

CMI offers competitive salaries and an attractive work place on the outskirts of Bergen, on the west coast of Norway. The Institute will assist in obtaining suitable accommodation. Applications, accompanied by curriculum vitae, should be sent to the Director, Dept of Science and Technology, Chr. Michelsen Institute, Fagerveg 38, Fagervik, Bergen, Norway.

Tel: + 47 5 294410. Telex: 40008 CMI-N

## SALES BIT

Quality of Management - 82

# An ignorant salesman is a walking disaster

FOR many companies, the only form of training that ever occurs is product training, which is usually limited to a few days for new recruits or for the salesforce at large prior to the launch of a new product.

This is not sufficient. The emphasis must always be upon balanced training, for only in this way can a complete salesman be produced.

As 1984 is the 200th anniversary of the death of Samuel Johnson, I would like to start out by quoting him on the subject of knowledge, and more particularly, in the context of the most precious qualities, professional integrity: "Integrity without knowledge is weak and useless, and knowledge without integrity is dangerous and dreadful."

First of all, let's consider the question of product knowledge by way of an extract from my book, *All About Selling*:

"There are many reasons why familiarity with one's product and its applications is important, and none more so than the self-confidence that it generates. There is no point in taking up any job if one cannot feel 100% committed to it, and it is not really feasible to enjoy a job without having the confidence of knowing what it's all about."

"Knowledge is a great professional strength that quickly earns not only the respect and admiration

## Knowledgeable sales people have an unshakable self- confidence that is quite removed from arrogance

tion of both clients and colleagues, but also makes sales success so much easier. I know many salespeople who are successful, despite the fact that they are not particularly good at selling.

"Their secret is that they know so much about their product, and the ways in which it can be used, that people virtually give them the business because they feel assured that someone so familiar with the subject will get the solution right and will be a pillar of strength in times of trouble."

"Competitors who could apparently sell them under the table fail to get into the final reckoning because they do not have the skills to discover the real problem and the best solution."

"It is easy to identify salespeople who have complete product and applications knowledge. They have an unshakable self-confidence that is quite removed from arrogance. They exude a quality of assurance that inspires those around them with confidence, they think and act with only success in mind."

Sadly, such comprehensive knowledge is seldom the case for most people within the typical salesforce, and this is particularly the case within the computer industry where the gap between superficial knowledge and total ignorance can be exploited to an alarming degree.

I can think of nothing more horrendous in selling than the blind leading the blind. The act of both buyer and seller believing in the package that is the basis of the transaction.

The buyer believes it because the salesman says so, and the salesman believes it because he wants to believe it, or no one told him otherwise.

An area of computer sales I find particularly alarming is the turnkey-micro sector. It's such an easy area for the aspiring entrepreneur to get into. There are lots of microcomputers at prices which grow daily more astonishing, and

## Suppliers can have on their hands a commercially unacceptable unexploded bomb

there is a multitude of commercial applications packages, available on almost any micro, from a host of software houses.

So, what easier than putting the two together and becoming an instant turnkey systems house?

For the salesman who enters this particular arena with established selling skills and little knowledge of computers or applications, the great temptation is to create up his initial feelings of inadequacy with a selection of appropriate buzzwords.

"This is likely to fool the uninformed end-user who typically takes the subordinate role of the ignorant who is soon impressed and believes what he is told. With the gross shortage of adequate salespeople within the computer industry, this is a more common problem than many people realise."

Many small companies have neither the financial resources nor the career potential to attract established salespeople from other parts of the computer industry and are therefore obliged to look outside the industry. Let me hasten to add that I see nothing wrong with that, with one major qualification, that the company concerned has the resources and commitment to thoroughly train such recruits in product applications and selling knowledge.

Unfortunately, this is seldom the case and for many, the financial pressure to get new salespeople out on the road and earning money is quite considerable.

Consequently, salespeople fresh out of universities, stationers, franking machines, typewriters and the like, find themselves out in the world advising people on the extremely serious implications of the computerising of their business problems, within days of entering the computer business.

This situation puts the credibility of the industry at great risk. All suppliers of computer systems that put their sales people out on the road without them having complete knowledge of their product and its applications, have on their hands an unexploded bomb that is likely to bring disaster upon their unsuspecting customers and possibly upon themselves.

Alan Williams

## PUZZLE ANSWER

ONE die is standard, and the other has three six-faces and three blanks.